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Salt Intake in Relation to Cutaneous Necrosis and Arthritis of One-Humped Camels *(Camelus dromedarius,* L.) in British Somaliland

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Contagious Necrosis

DESCRIPTION: The disease of camels to be discussed is that referred to by Cross[1] and Leese[3] as "Jhooling" in India and "Dalehau" in Somaliland; it is commonly known as "contagious necrosis." A preliminary note on the observations to be described here has already been published in this journal[4].

In Leese's admirable description of the disease he states:—

"There is at first a painful swelling of the skin, on which the hair soon falls out; the skin over the centre of this swelling becomes hard and dry like a 'sitfast.' The camel, in spite of the pain, shows a desire to bite or rub the place, which evidently itches. The hard dry scab-like centre of the lesion is actually dead skin, and the lesion seldom involves the subcutaneous tissue to any serious extent. This 'sitfast' may be of any size from that of a threepenny bit up to the size of the palm of the hand.

"After a time, which may be from 7 to 14 days, a line of demarcation begins to appear between the dead piece of skin and the living skin around it, and if, at this stage, pressure be applied over the dead central scab, thick pus will generally appear somewhere along this margin. Later, if left to itself, the central portion will slowly separate and slough away, but the edge of the ulcer which is left does not always heal up in a healthy manner, but becomes, in its turn, hard, dry and under-run with pus, and the process of necrosis (local death) of skin tends thus to spread outward. The pus and pieces of semi-detached necrosed skin give the lesions a most repulsive appearance. The lymphatic glands draining the part become swollen, hot and painful."

Fresh lesions may appear during the course of the disease on almost any part of the body.

In addition to the local symptoms the following features of the disease are observed: a loss of vigour and of general good health, which is evinced by a dry lustreless and persistent coat containing many broken hairs. Further, constipation and oedema of the hard palate are frequently seen and any incidental wounds or injuries tend to become septic and are difficult to heal. In the female lactation is markedly reduced. The disease does not, in the writer's experience, occur at the coast, nor is it seen among native camels which are given salt sand or salt bush. Its greatest incidence is after the spring rains have finished and when the hot, dry, south-west sand-bearing *kharif* wind is commencing.

FEEDING EXPERIMENTS: The camels on which the observations to be described below were made were mainly one-humped light-weight Somali riding camels of the Somaliland Camel Corps, and it should be remarked that these animals, in contradistinction to certain other camels, rarely perspire.

The camels were locally recruited in Somaliland, and were all *'surra*-free (*Trypanosoma evansi*) when tested by Bennett's test.

After newly recruited animals had been in the Somaliland Camel Corps for a few months it was noticed that about 7 per cent. of them developed contagious necrosis of the skin, and consequently had to be quarantined and taken off duty. It was also observed that these grain-fed camels did not have that "bloom" and freshness which is associated with the healthy camel in his natural surroundings. It was therefore deemed expedient to investigate the cause of the contagious necrosis with a view to increasing efficiency and decreasing the large number of lost camel working hours.

In view of the fact that bush camels, which are native owned, do not, except rarely, suffer from contagious necrosis, it was presumed from the first that faulty management in some form would be found to be concerned in the etiology of the disease and faulty diet was first considered.

The normal diet of the Somaliland Camel Corps camels consisted of :—

Split gram (*Cicer arietinum*) ..	4 lb.
Wheat bran	2 ,,
Rough salt	1 oz.
Hay	10 lb.
	(plus grazing)

This is obviously an unduly nitrogenous ration. It was, therefore, decided to include locally grown sorghum (*Sorghum vulgare*) in the ration and to reduce the amount of gram. Thirty camels were retained on the normal ration and 30 were given a diet of :—

Split gram	2 lb.
Uncrushed sorghum	2 ,,
Wheat bran	2 ,,
Salt	1 oz.

No facilities were available for crushing the sorghum and so it was fed whole. After six months feeding, with ordinary routine management, both groups of camels were sent on trek. It was apparent that no advantage in condition, or efficiency, had resulted from feeding the new ration and the incidence of contagious necrosis remained unaltered in both groups.

Camels are greedy salt feeders and when offered neat salt they will devour it with avidity. In order to determine whether an adequate salt ration was being fed a further 20 camels were divided into two groups of ten and fed as follows :—

Group 1.		*Group* 2.	
Split gram ..	4 lb.	Split gram ..	2 lb.
Bran ..	2 ,,	Sorghum ..	2 ,,
Crude salt ..	*ad lib.*	Bran ..	2 ,,
		Crude salt ..	*ad lib.*

An analysis of the crude salt used was made by the Imperial Institute with special reference to iodine content, and the following percentage figures were obtained :—

Potassium (K) 0·29
Sodium (Na) 36·59
Magnesium (Mg) 0·36
Calcium (Ca) 0·53
Chlorine (Cl) 57·23
Sulphate radical (SO_4) 1·99
Carbonate radical (CO_3) not detected
Phosphate radical (PO_4) not detected
Iodine (I) less than 0·0002
Moisture and combined water 3·06
Matter insoluble in water 0·38
Total 100·43

The ordinary serving camels functioned as a control in this experiment.

Nearly a pound of neat salt was consumed by each camel on the first day and they gradually decreased their consumption until they achieved a steady four-day cycle in which consumption rose markedly after watering, and then gradually decreased, until the next watering four days later.

The effect of these diets on the health of the camels was quickly observed. The old coat was shed, "bloom" was quickly restored, and, in addition, a marked normal physiological subcutaneous oedema occurred within a few hours of watering. This oedema was maintained for about 24 hours. If the oedematous areas were palpated they fluctuated gently.

Concurrently with the foregoing experiment an experiment planned in consultation with the Rowett Institute, Aberdeen, to obtain general data was set up.

Twelve camels were divided into two groups, A and B. Arabian camels, long domiciled in Somaliland, were unfortunately the only ones available for this particular experiment.

Group A were fed daily 5 oz. of a mineral mixture containing :—

	Parts.
Commercial di-calcium phosphate	40
Ground rock salt	30
Ferric oxide	2
Potassium iodide	1

Group B served as controls and were managed in the usual routine manner.

Three camels were also taken from both groups (A and B) and given 1 oz. of oleum morrhuae B.P. (B.D.H.) daily.

Both groups were receiving the usual camel ration, which, it will be remembered, included 1 oz. of rough salt.

The result of this experiment, which was also continued for six months, was that there was a very slight initial improvement in the mineral-fed group A, but no benefit was seen in the three camels in Group B which were fed oleum morrhuae.

After a few weeks it was found that the mineral mixture was unpalatable, and in order to induce the camels to eat it with their grain the amount given had to be halved.

The slight initial improvement in Group A was not maintained, and all the camels in the experiment showed an equal amount of indifferent condition. Repeated estimations were made of the Hb. percentage of the venous blood (jugular), and a wide range of variation was found in each group. It was not less, and the general level was not higher, than in the group receiving iron.

The following conclusions were drawn from this small experiment :—

(1) Additional iodine did not appear to be required in the camel ration.

(2) There was no deficiency of iron in the diet.

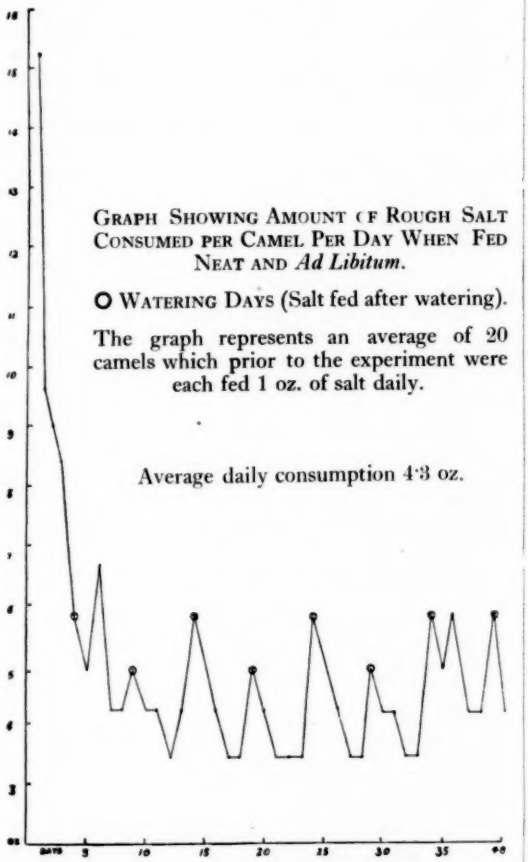
(3) Since neither rickets nor other deformity of bone occurs in Somali stock, a deficiency of calcium, phosphorus or vitamin D is not probable.

It seems that the slight initial improvement in the mineral fed group was due to the fact

that they were receiving double the normal salt ration, *i.e.*, 1 oz. in the normal concentrate grain mixture plus that fed in the mineral mixture.

From these preliminary trials it became increasingly apparent that deficiency of common salt was probably concerned in the etiology of contagious necrosis.

To test this point, a further 20 of the ordinary serving camels were fed their usual diet but were allowed unlimited rough salt. The amount of salt consumed, in relation to watering, is shown in the appended graph.


GRAPH SHOWING AMOUNT OF ROUGH SALT CONSUMED PER CAMEL PER DAY WHEN FED NEAT AND *Ad Libitum*.
O WATERING DAYS (Salt fed after watering).
The graph represents an average of 20 camels which prior to the experiment were each fed 1 oz. of salt daily.
Average daily consumption 4·3 oz.
DAYS 5 10 15 20 25 30 35 40

The effect of this unlimited salt was very quickly apparent. Contagious necrosis disappeared, the lesions healed and the normal physiological oedema, to which reference has already been made, regularly occurred. The camels improved in condition to such an extent that it was found practicable to reduce the gram fraction of the ration by 25 per cent.

Some evidence was found[4] that, even when accustomed to the 5 oz. salt ration, camels would still willingly take salt bush in addition. This appeared further to improve the condition of the coat, and suggested that there might be some substance present in salt bush not supplied by the crude salt. Spectrographic examination of crude salt and salt bushes has failed to show the presence of any inorganic element likely to be of significance (see Note 1 appended). This does not, of course, rule out the possibility of the presence of some organic substance in salt bush, not supplied by salt.

Arthritis

An important, and altogether unexpected, incidental observation was also made. Cases of arthritic lameness, of unknown causation, which were very common amongst the camels, have disappeared during the two years in which the increased salt ration has been fed. Arthritis in camels has been described by Leese[3] and by Rabagliati[5].

Leese describes "Arthritis of the Shoulder Joint," as known throughout North-West India, as "Akr" and common in British Somaliland where it is called "Gudan." He also quotes from Rabagliati's description of polyarthritis in Egypt and states: "There is no disease of this nature in the home-country of the Somali camel. . . ." This statement does not, however, appear to accord with Rabagliati's own view, as indicated by the following quotations:—

"As stated previously, the condition was only encountered in the Somali camels, though occasionally localised arthritis with even ulceration of the articular cartilages might be seen in other camels, and most of such cases were probably traumatic in origin. Somaliland camels of all ages were apparently affected, and the writer has seen the condition in very young animals of less than four years of age as well as in very aged ones. Unfortunately, he has never visited Somaliland, and can therefore only describe the disease in the camels when imported into Egypt. More than 2,000 cases came under his personal observation, most of which were unfit for work and had to be cast. . . .

"It was not possible to discover any definite cause responsible for the condition, and, as far as can be ascertained, the disease was not noticed in Somaliland by the purchasing officers, veterinary and others, who were experienced men. The disease was, nevertheless, seen in camels very soon after they had been landed in Egypt, and from the firing marks on the shoulders and hips of some of them one was led to believe that the disease must have been seen by the natives of Somaliland at some time or other, though symptoms may not have been evident at the time of purchase. It is said that these camels are worked very little in their native land and are often left idle for many

months at a time. It is quite possible that the disease may have been in some way brought about by some peculiarity in the soil or water, or even by the food of their own country, and doubtless it was much aggravated by the changed conditions of a new country, especially when the camels were put to work under conditions to which they were not accustomed. This, however, is merely stated as a possible theory."

From the written descriptions, it appears likely that Leese's arthritis of the shoulder joint and Rabagliati's polyarthritis are the same condition as that in Somaliland, although probably some of the cases described by Rabagliati were more chronic and showed more aggravated symptoms than are common in my experience. Our cases are treated as soon as lame and are never allowed to become chronic.

Symptoms.—The following description of the symptoms is based on that by Leese, but has been slightly modified to accord with the condition as it occurs in Somaliland :—

The camel rarely carries his leg but may be either "dead" lame or slightly lame. The shoulder is moved stiffly, giving a peculiar "tied-in" appearance to the gait when both sides are affected. A similar "tied-in" gait is seen when the saddle has been ill-fitted and has bruised the lateral aspects of the withers. The step is short. The affected camel can hardly be made to run, and when it does so it is with the head carried low and extended. The most characteristic symptom is that the lameness and stiffness are worse when the camel has been at rest for say half an hour, and tend to wear off quickly with exercise. There is never any swelling and the temperature is normal.

When the camel is made to sit down, he resists because he is afraid of the pain ; if the case is very acute, he may fall right over on to his side when the knee of the lame limb comes to the ground ; in less acute cases, great deliberation is exercised in all the movements, the sound forelimb (if the disease is on one side only) bearing nearly all the weight of the fore part on its knee ; the hind quarters sink slowly to the accompaniment of a grunt, and the knees slither slowly forward until the elbows reach the ground. When sitting, the camel often leans over towards the side opposite that in which the disease is, although the hind quarters sit square ; this gives the spine a twisted appearance ; the elbow-pad of the same side is kept off the ground, and the forearm is rested on the knee only and stuck out towards the side. The camel rises more easily than he sits, but most of the weight of the forepart of the body is maintained on the sound knee during the act of rising and the final rising from the knees is done with a sudden jerk and a grunt.

Unless the camel is properly treated in the early stages, chronic arthritis supervenes ; this is shown by shoulder lameness of less intensity, or sometimes by only a stiff tied-in action, very marked as the camel moves off after standing, but tending to wear off as the animal "warms up" with exercise ; nevertheless, daily exercise and work cause the animal to get worse but continued rest improves the condition. When worked, loss of condition quickly occurs ; and, where there is much pain felt in the joint, the appetite may also be affected unless the animal is completely at rest. Sooner or later, well marked atrophy of the muscles about the shoulder will occur from disuse.

Prognosis.—If the camel is treated at the first onset by rest, recovery will as a rule take place after some weeks. When the camel is brought for treatment only long after the onset, having in the meanwhile been worked whenever not too lame to carry a load, the case may be incurable ; although improvement occurs temporarily when rested, the lameness too often recurs when the camel is again put to regular work. Prognosis will be based chiefly on the length of time that the camel has been lame before complete rest was given, and the severity of the lameness or stiffness.

Rabagliati states that rest in some instances aggravates the condition. This has not been found to be the case in Somaliland.

Autopsy.—Lesions are invariably found on the joint surfaces, particularly those of the shoulder and hip. Areas of cartilage are either diffusely inflamed, which gives them a pink appearance, or are slightly eroded, the edges of the eroded areas sometimes being slightly raised but smooth. The lesion may be from the size of a pin's head to that of a shilling.

The affected joints are not swollen, and sometimes there is a decrease in the amount of synovial fluid. This is in contrast to Rabagliati's description : except for this, his description of the *ante-mortem* and *post-mortem* features of the disease in Egypt strongly suggests the condition under discussion.

A description of the lesions found in Somaliland camels has been supplied by Mr. Norman H. Hole and is given below in Note 2.

The Use of Salt in Camel Management

In view of the results which have been achieved by an increased salt ration over a period of two years with some 150 camels, it is worth while examining the part played by salt in camel management.

The Somali camel in the care of the native requires salt sand, salt bush (*Salsola* spp.) or salt water, at least every six months to prevent contagious necrosis and debility. Rough salt is not fed.

A typical salt sand was analysed by the

courtesy of the Imperial Institute and the following report made :—

"The sample consisted essentially of a calcareous soil impregnated with soluble salts.

The material soluble in water was extracted and examined, with the results shown in the following table:—

Water soluble material		*per cent. of material as received*
Potash	K_2O	0·012
Soda	Na_2O	2·084
Magnesia	MgO	0·014
Lime	CaO	0·038
Ferric oxide	Fe_2O_3	0·018
Alumina	Al_2O_3	
Chlorine	Cl	1·325
Iodine	I	not detected
Sulphuric anhydride	SO_3	1·032
Carbon dioxide	CO_2	0·288
Silica	SiO_2	0·020

The radicals may be combined to form hypothetical compounds as follows:—

Hypothetical combination		*per cent. of material as received*
Potassium chloride	KCl	0·019
Sodium chloride	NaCl	2·169
Sodium sulphate	Na_2SO_4	1·831
Sodium bicarbonate	$NaHCO_3$	0·365
Calcium bicarbonate	$Ca(HCO_3)2$	0·109
Magnesium bicarbonate	$Mg(HCO_3)2$	0·051
Ferric oxide	Fe_2O_3	0·018
Alumina	Al_2O_3	
Silica	SiO_2	0·020

The sample also contained 0·22 per cent. of phosphoric anhydride, P_2O_5, soluble in acid.

It will be observed that the greater part of the water-soluble material consists of sodium chloride and sodium sulphate, the remaining constituents being all relatively small in amount. . . . It appears that of the constituents present in this 'salt lick,' only the sodium chloride is likely to be of value, although the sodium sulphate 'Glauber's salt,' may also have some slight medicinal value.

In a country such as British Somaliland, where much of the soil appears to be calcareous and hence probably supplied with a sufficiency of phosphoric acid, the herbage is not likely to be deficient in calcium phosphate.

Iodine could not be detected in the present sample and, although it is only required in minute traces, deficiencies in this element would not be remedied by the use of the material."

That iodine deficiency is not the predisposing cause of contagious necrosis and debility has already been indicated as a result of the experiment in which a compound mineral mixture which contained potassium iodide was fed. It appears most probable that the deficiency is of sodium chloride.

General Note

Modern literature on the camel is slight, but it is interesting to note that Steel[6], quoting Pallas, in 1890 states that "camels thrive on the steppes in proportion to the amount of salt they obtain," and Leese[3] remarks that camels from which salt is withheld are liable to become affected with abscesses. In view of the camels' well-known desire for salt when receiving 1 or 2 oz. of salt daily it is curious that in "Animal Management"[7] the salt ration for the camel should be given as low as 1 to 1½ oz. daily.

The writer has not attempted to treat the subject of contagious necrosis from a bacteriological point of view but it should be recalled that Curasson[2] reports the isolation of a streptothrix from affected camels in the French Sudan and its cultivation in Martin's broth. He reports a few successful transmission tests using pus and cultures from natural cases.

He also quotes other workers who have found organisms (*Sporotrichum* and *Corynebacterium*) in affected camels, and concludes that the disease is not a sharply specific infection and that camels are very apt to acquire suppurative conditions in association with various microbial infections.

Cross[1] considers it probable that the infecting organism is a fungus.

If the disease is caused by a specific organism it would seem that a proper salt ration creates an environment inimical to its growth.

It would be interesting to see if lesions of contagious necrosis of the skin could be produced in camels receiving adequate salt, but as diseased camels are not now available this cannot be done.

It must be admitted that in spite of feeding additional salt occasional cases of boils and abscesses have occurred. The lesions, however, have not shown the virulent contagious nature formerly seen; they did not tend to spread peripherally, nor have they been difficult to cure. It is, in any case, possible to say definitely on the basis of two years' experience of feeding 5 oz. of salt per head daily that the camels are healthier and that cases of obscure arthritic lameness do not now occur.

Treatment of the Lesions of Contagious Necrosis

The writer has tried many treatments for the cure of cutaneous necrosis, including the application of acriflavine; of salt and iodoform in an endeavour to form an anaerobic scab; of cod liver oil locally applied to the lesions in the hope that it would show the same healing effects as when applied to skin abrasions; of coal tar disinfectants, and of cauterisation with tincture of iodine (mitis). The treatment found most effective is cauterisation of the lesion with pure phenol followed by the application of 4 per cent. saline packs. Intravenous infusion of 1 pint of 5 per cent. saline every second day is beneficial and Bipp round the dressing will keep off tick-birds and flies.

Conclusion

Rough salt when given at the rate of 5 oz. per day will prevent and (in conjunction with local treatment) cure cutaneous necrosis of the skin in Somali camels; further, this treatment will eliminate cases of obscure arthritic lameness. Evidence is offered that it is a lack of sodium chloride which causes or at least predisposes to contagious necrosis, and it is suggested that the normal salt ration for lightweight riding camels, working under conditions which do not cause them to perspire unduly, should be 5 oz. of salt per day.

Acknowledgments.—I have pleasure in expressing my indebtedness to Mr. Hole, Dr. Mitchell and Miss Leitch for the work they have done and for their Reports; also to Colonel C. V. Bennett (Officer Commanding Somaliland Camel Corps) and his officers for their co-operation.

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Note 1

Report on Spectrographic Examination of Salt Sands and Salt Bushes

[By R. L. Mitchell, B.Sc., Ph.D., Macaulay Institute for Soil Research, Aberdeen]

Salt Sands.

A (Arro) from Galoleh: a good sand in native opinion; it does not cause purgation.

B (Sell) from Burao: a poor sand in native opinion.

From spectrographic examination the outstanding difference between the two sands is the high Na content of the former (A). The former is also judged to be higher in Si, Al, Ti and Mn. The latter (B) is judged to contain more Co, Ni, Cr, Cu, V, Zr, Ga, K, Li, Ca and Mg.

Acacia and Salt Bushes.

1. Galol (*Acacia laronum*).

2. Addi bush (*Salvadora indica*): true salt bush; causes diarrhoea.

2a. Collected at 6 a.m. when the camels relish it.

2b. Collected at noon when the camels prefer other plants.

3. Gulan (proper name unknown): a true salt bush; does not cause diarrhoea.

3a. Collected at 7 a.m. when eaten.

3b. Collected at 11 a.m. when other plants preferred.

Spectrographic examination shows that Acacia contains less Na than any of the others but more Ni, Pb, Li, K and Ba.

There is no detectable difference between 2a and 2b or 3a and 3b.

The Addi bush is high in Na and Ca; low in K, Li and Mn; medium in Ba and high in Ca.

Gulan is high in Na and K; low in Cs, Li and Ba and normal in all others.

Note.—There is no evidence in the above of the presence of any element of importance other than Na(NaCl).

. . . . .

Note 2

Report on Material received from Mr. E. F. Peck, British Somaliland, re Arthritis in Camels

[By Norman H. Hole, B.Sc., M.R.C.V.S., Veterinary Laboratory, Weybridge]

Specimen 1.—The proximal extremity of the femur.

The head showed an area of shallow haemorrhage on the articular surface near the *fovea capitis*, approximately 1 × 0·5 cm. in area.

Specimen 2.—The distal extremity of the scapula.

A similar area of haemorrhage to that seen in the femur above; near this a roughened area of cartilage about 0·5 cm. diameter.

Specimen 3.—The distal extremity of the femur (a different beast from Specimens (1) and (2)).

A considerable congestion of the trochlear ridges.

Specimen 4.—The proximal end of the tibia.

Several areas on the articular surfaces showed roughening of the cartilage.

Specimen 5.—The distal extremity of the tibia.

Congestion of the ridge separating the articular grooves.

Specimens 6, 7 and 8.—The articular surfaces of the shoulder joint and the distal extremity of the humerus.

Each of these articular surfaces showed a moderate degree of cartilage erosion.

It must be noted that these specimens had all been in fixative for some time before coming to my hands, and that the descriptions given are probably not a true record of the *post-mortem* appearances. All the lesions I have observed have been superficial in nature, affecting at the most only the top layers of cartilage. In no case have I found macroscopic or microscopic alterations in the bone, nor any evidence of bony exostoses. The lesions have not approached in severity either the arthritic lesions of horses in which deep erosions of the articular surfaces and fibrous ankylosis occur or the lesions described in camels by Rabagliati.

There is no doubt that arthritic lesions are present, but I am not prepared to classify the condition on the material received. I am of the tentative opinion at present, however, that the condition is more of the nature of a rheumatoid arthritis in which the lesions spread from the soft tissues of the joint, than of an osteo-arthritis, in which the lesions originate from cartilage or bone.

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Salt Requirements of the Camel

We publish elsewhere in this issue a paper on salt requirements in relation to cutaneous necrosis in Somali camels. Since "Jhooling," the skin condition referred to, is not uncommon in India, Egypt and the Sudan, but has not hitherto been regarded as due to defective nutrition, it would be of great interest if other veterinarians in charge of camels could repeat the clinical observations and confirm the prophylactic results recorded by Mr. Peck.

Disorders of sodium chloride metabolism, associated with dysfunction of renal tubules as in chronic nephritis and adrenal insufficiency (Addison's disease), or with undue loss of chloride as in pyloric stenosis with frequent vomiting, and in febrile conditions with excessive sweating, are common enough, but Mr. Peck's observations come into an entirely different category and predicate increased susceptibility to a contagious skin disease merely as a result of suboptimal salt intake. This, if confirmed, would be of outstanding significance.

Apart, however, from the specific significance of salt deficiency as a predisposing cause in the aetiology of cutaneous necrosis, the observations on voluntary salt consumption in relation to water drinking suggest peculiarities in the metabolism of the camel, worthy of further investigation. The salt allowance of 1 oz. in the original ration is somewhat meagre but *a priori* there is no reason to assume that it should fail to cover minimum physiological requirements. One ounce for a riding camel weighing 1,000 lb. would be equivalent to about 4 grammes for an adult man of ten or eleven stone, who, although consuming over twice this relative amount when adjusting salt intake according to taste, shows no signs of salt deficiency on less than half of it unless the low salt consumption is associated with profuse sweating—as in the case of the environmental disorder known as "miner's cramp." In this connection it would seem possible that riding camels may, especially in a hot, dry, windy atmosphere, lose considerable sodium chloride by "insensible perspiration" even if visible sweating is not pronounced, and that this might account for the marked "salt hunger" shown by Mr. Peck's camels when offered salt *ad libitum*. These camels greedily consumed up to 1 lb. per day at first, thereafter settling down to a more rational average of 4 oz. At watering intervals of four days, however, the consumption on the day of watering was about twice that of the preceding day, and associated with this regular periodic behaviour was a "normal physiological subcutaneous oedema fluctuating gently on palpation" which appeared within a few hours of watering and persisted for 24 hours.

This suggests certain peculiarities in the water metabolism of the camel, an animal which, although drinking daily like any other ruminant when occasion offers, can be readily trained to go without water for several days. The duration of water abstinence is, of course, exaggerated in fable, and the popular explanation that the "water diverticulae" of the rumen enable the camel to "store water" seems inadequate in view of the limited capacity of these relatively small anatomical structures. The possibility that "physiological oedema," not confined to subcutaneous tissue, might be a second storage device, is not beyond the bounds of legitimate speculation. In any process involving varying distribution of water over different tissues at different times sodium chloride would certainly play an important part in maintaining osmotic pressure relationships.

PROTECTION OF NEW FOREST PONIES

Measures are being taken to preserve the lives of wild New Forest ponies, scores of which have been killed on the roads during the black-out. Five hundred of the ponies have been sold at two auctions in Hampshire, chiefly to motorists in search of other means of transport. The remainder, which were still a danger to motorists using the main road through the forest, have been moved to enclosed pastures away from the highways.

Mr. Montague Chandler, clerk to the New Forest Verderers' Court, said recently that the scheme for marking ponies like zebras with white paint so that they could be seen by motorists at night had not been effectual. The experiment was not successful because of the reduced lighting, he stated, and foals would not go near the ponies.

Under laws made in the time of King William Rufus, New Forest ponies are allowed to roam at will over the wooded acres.

* * * * *

Registrations of 723 Suffolk mares in the Suffolk Horse Society's recently published Stud Book (Vol. 42) are a record for any year. Stallions show a slight decrease compared with last year, but are well above the average for the past five years.

CLINICAL COMMUNICATION

"Concretions," "Soft Calculi" in Colon of Pit Horses

Source of Magnesium Content

F. C. SCOTT, M.R.C.V.S.
PONTEFRACT, YORKS

In the year 1937-38, many cases of soft calculi were encountered in the terminal portion of the large colon in a stud of 220 pit horses. Diagnosis by rectal examination in the animal affected with colic presented no difficulty. Dislodgement forward of the obstruction by forced rectal lavage on former occasions being successful in only a small percentage of cases, destruction of the animal in most of these cases was carried out. In one case enterotomy was attempted, but it was found impossible to bring the affected part, situated below the right kidney and suspended by a relatively short mesentery, to the operation wound in the flank.

Investigation as to cause was requested by the owners.

Certain peculiarities in the life of the pit horse were considered. Owing to the atmospheric conditions the horses lose a good deal of sodium chloride in sweat; their excreta is normally firmer than that from surface horses, indicating slower bowel movement and more terminal bowel absorption; there is coal dust and stone dust—the latter put there for a special purpose—floating in the atmosphere. It was recommended that carrots or mangel wurzels be given in the winter, green food in the summer and that rock salt be allowed *ad libitum* throughout the year. Within three months a further case occurred and the owners asked for further investigation, consequently a chemical analysis of the dry matter of this soft calculus was made which showed:

	per cent.
Aluminium Silicate ...	1·95
Aluminium Phosphate ...	32·23
Magnesium Phosphate ...	56·64
Organic and undetermined matter	9·18
	100·00

An analysis of the stone dust used in the mine showed:—

	per cent.
Silica (SiO_2)	58·95
Oxide of Alumina ...	22·02
Oxide of Iron	6·86
Oxide of Magnesium ...	1·62
Oxide of Calcium	0·35
Loss	9·37
Sodium and Potassium by difference	0·83
	100·00

Considering the high amount of aluminium phosphate in the calculi, one may conclude that this is derived from the stone dust which contains a high proportion of alumina, but one could not fairly conclude that the high proportion of magnesium phosphate in the calculi was derived from the 1·62 per cent. of magnesium oxide in the stone dust.

A review of conditions in the owners' horses in their other colleries and of over a thousand other colliery horses, showed that similar atmospheric and dietary conditions prevailed, also that to all intents and purposes the same stone dust was being used and with them "calculus" was almost unknown.

It was disclosed at this juncture that each horse in the affected stud was receiving two ounces of magnesium sulphate once weekly, consequently it was concluded that this was the basic factor in the production of the calculi.

Sodium sulphate was substituted for magnesium sulphate, and twelve months have passed without a further case.

I wish to express acknowledgements to Mr. Arundel for the analyses and to Professor Wooldridge for interest and help in the investigation.

Munster veterinary inspectors recently adopted a resolution stating that it would be a measure of social justice that veterinary inspectors employed by the Department of Agriculture should be entitled to a pension on reaching an age to be determined, considering that the mental and physical capacity of veterinary inspectors may show a great variation at relative ages. They were of opinion that this retiring age should be made optional and not obligatory, providing that their different departments were satisfied as to the physical and mental capacity of such inspectors.

* * * * *

After discussing the issues involved in the Government's intention to control the collection and distribution of fat cattle for slaughter, the council of the Smithfield Club has passed a resolution urging upon the Government "the vital necessity of obtaining expert advice on technical details both as regards livestock and its subsequent distribution."

ABSTRACTS

[Post-mortem Findings in Veterinary Forensic Medicine. (Trans. title.) Dobberstein, J. (1939.) *Berl. Münch. tierärztl. Wschr.* Nos. 7, 14 and 15. Pp. 101, 213 and 229.]

As there exists very little information relating to this subject in English literature the most important observations of Professor Dobberstein have been summarised in the hope that they may be of interest to the practitioner.

When an animal dies shortly after purchase, the new owner often attempts to prove that the pathological process which caused the animal's death already existed prior to purchase. In the absence of definite evidence of lesions of long standing, one is often tempted to fall back on "dilatation of the heart" as a cause of death. It should be realised that cardiac dilatation is not in itself of importance but rather does it produce its effect by interfering with the circulation in other organs, *e.g.*, the lungs or liver will show evidence of long-standing chronic venous congestion (cyanotic induration of the lungs and "nutmeg" liver). In the absence of any such changes one should not give a diagnosis of "dilatation of the heart."

Valvular lesions affecting the heart are easily recognised when in the form of well-marked vegetations. Chronic passive congestion in the lungs and liver and infarction of the kidneys will afford evidence of the seriousness of the valvular lesions as well as their duration. In the pig, one must demonstrate the causal organism if one is to prove that the vegetations are due to swine erysipelas—they may be caused by streptococci or by *Corynebacterium pyogenes*. Simple fibrous thickening of heart valves must be interpreted with caution as it is seldom of importance and one can take it as a general rule that heart lesions unaccompanied by evidence of circulatory derangement in the liver or lungs are of little note.

Inflammation of the serous membranes may develop rapidly and is not easily shown to have been present prior to purchase. On the other hand, traumatic pericarditis and liver fluke peritonitis in cattle and peritonitis due to strongyle larvae in horses are more gradual processes, the age of which can be fairly well assessed from histological examination. In the case of fluid being present within a serous cavity its characters must be carefully recorded —volume, specific gravity, cellular content, etc. Histological examination of the affected serous membrane will give a reliable idea of the duration of the process; the volume of the exudate is of no importance in this connection. Localised patches of thickening on serous membranes are of no importance, but fibrous adhesions between organs may be of importance by impeding movement and facilitating intestinal strangulation. In the case of transudates the cause should be looked for, *e.g.*, heart disease, liver cirrhosis, liver fluke in sheep, gastric and intestinal strongylosis in sheep and cattle.

From the *post-mortem* findings and histological examination it is often difficult to estimate the age of tumours. Size affords no reliable indication. In the case of carcinomata, the scirrhous type usually grows more slowly than the soft or encephaloid type. Necrosis, fatty changes and softening are marked in rapidly growing neoplasms. The frequency of mitoses and degree of differentiation of the tumour cells are of special importance in histological examination. In the case of benign tumours the effect on the host varies widely with the situation, *e.g.*, a small pedunculated lipoma of the mesentery may be more serious than a much larger tumour in the spleen or uterus.

In cases where it is suggested that the lay or veterinary attendant is liable for the animal's death two conditions must be satisfied:—

1. The person must have been guilty of negligence.

2. This negligence must alone have been responsible for the animal's death.

The *post-mortem* examination alone can rarely afford definite proof of negligence and this can usually be decided only after considering all the evidence available, *e.g.*, the testimony of witnesses. For instance, perforation of the uterus can be shown at autopsy to have resulted most probably from uterine lavage but it is not possible to state that this was negligently carried out. The degree of liability for the animal's death varies:—

1. If the error of judgment was directly and solely responsible for the animal's death the defendant is held responsible, *e.g.*, negligent rectal perforation followed by gangrenous peritonitis.

2. There may be evidence that the negligent treatment might have caused death but there is found some other condition which in itself might also have been fatal, *e.g.*, oesophagus ruptured by passage of stomach tube in horse for gastric tympany; autopsy revealed in addition well-developed volvulus of small intestine. In such a case the defendant is not liable.

3. If the animal died as a result of negligent treatment but would in any case have died from the primary disease, the defendant is not liable, *e.g.*, cow treated for atony of the rumen with an overdose of eserine and died; autopsy showed a gangrenous pneumonia which in any event would have proved fatal within a few days. Care is needed not to confuse such cases with conditions such as an encapsulated cerebral abscess which may exist for a long time without causing death.

If a veterinarian is accused of negligence resulting in an animal's death he should always insist on a most detailed autopsy and should himself be present when it is performed. In this way any possible contributing cause is investigated and often his name is cleared.

Drenching pneumonia results from the passage of food or medicaments into the trachea after drenching with a bottle or stomach tube. The lesions at autopsy comprise a gangrenous pneumonia, usually accompanied by pleurisy. The areas of lung usually affected are the posterior part of the anterior and middle lobes. The bronchi should be incised and a search made for food material or medicine. Other possible causes of gangrenous pneumonia include secondary haematogenous infection from septic metritis, mastitis, tendo-vaginitis or arthritis, or after intravenous injections. In the horse it may also be secondary to an ordinary pneumonia.

There may have existed some interference with swallowing, *e.g.*, pharyngitis, oesophageal stenosis or paralysis. In such cases, even if the material given by drench is found in the lung, there exists no liability. It is possible also that the owner or lay attendant administered a drench apart from that given by the veterinarian —this may necessitate recognition of the constituents of the drench within the lung, *e.g.*, turpentine (odour), oils (fat stains applied to frozen sections), plant material (linseed, ginger, etc.). It is difficult to assess the age of the lesions: gangrenous pneumonia is usually fatal in five to seven days but the interval may be as short as three days.

Perforation of Hollow Organs, e.g., Uterus, Rectum, Oesophagus, Pharynx.—The use of a balling stick may be followed by perforation of the pharynx at the junction of the hard and soft palate, causing a phlegmonous pharyngitis followed by gangrenous pneumonia. In cattle and horses the oesophagus may be perforated by the passage of a stomach tube. The mucosa is usually found at autopsy to be everted through the tear. Thoracic penetration results in a purulent pleurisy and is rapidly fatal. Cervical tears lead to peri-oesophageal abscess formation, thrombosis of the jugular vein, etc., and the course is more protracted. Penetration of the oesophagus may also be due to foreign bodies, *e.g.*, wire, nails or glass or to extension from abscesses or secondary to the presence of an oesophageal diverticulum. The age of the tear can be decided by histological examination.

Perforation of the rectum may result from rectal palpation, enemata, service, sadism or even from the simple use of a thermometer. Peritoneal sepsis causes death in 6 to 24 hours if the perforation is large. The usual site is in the dorsal part of the intestine at the junction of rectum and small colon. If the perforation is small, and especially if the faecal material passes into the folds of the meso-rectum, death may be delayed several days. If perforation occurs in the posterior part of the rectum a peri-proctal abscess may result with rupture into the rectum or around the anus and the animal may survive one to two weeks. Histological examination of the wall of the abscess will indicate the duration of the process. Actual rectal rupture can occur as a result of sudden spasmodic contraction of the rectum during rectal examination and is not necessarily due to negligence.

Rupture of the uterus may be spontaneous or traumatic. The latter is usually in the dorsal part and in the mare is almost always fatal, whereas in the cow and sow, small perforations frequently heal. Perforation is especially dangerous if already there exists a septic metritis. The presence of medicaments in the peritoneal exudate should be looked for as evidence of rupture due to uterine lavage. The condition of the site of perforation and of the peritoneum indicates the age of the process. Rupture of a thin, already weakened uterine wall can readily occur quite apart from negligence.

Errors in the technique of intravenous injection may give rise to thrombophlebitis. The usual cause is infected instruments or repeated attempts to enter the vein often accompanied by passage of the needle completely through the vein and injection into the underlying tissues. Thrombophlebitis of the jugular may also result from inflammation in neighbouring tissues but this is rare in this site. Death results from pyaemia with metastatic abscesses in the lungs, kidney, myocardium and brain. Sudden death occasionally occurs from embolism of a large branch of the pulmonary artery. Complete recovery can follow even severe thrombophlebitis and the time elapsing between the first symptoms and death or recovery may vary from a few days to several weeks.

Pulmonary embolism as a cause of death results from the passage into a branch of the pulmonary artery of a large thrombus from one of the systemic veins, *e.g.*, the jugular following intravenous injections, uterine veins in septic metritis, mammary veins in gangrenous mastitis. At autopsy, there is evidence of asphyxia in the form of subpleural and sub-epicardial haemorrhages; the left side of the heart is empty, the right side filled with blood. Air embolism is rare; amounts of air as large as several litres may not be fatal although in occasional cases quite small amounts of gas introduced into a vein have caused death.

In cases of suspected poisoning the autopsy should be made with the greatest care and a

thorough macroscopic and microscopic examination carried out. Careful attention should be paid to the clinical history and to the evidence of witnesses. In some cases the aspiration into the lungs of the normal dose of the drug when given *per os* may prove fatal. For purposes of chemical analysis the following samples should be collected in clean separate glass vessels: gastric and intestinal contents, urine, portions of gastric and intestinal wall, kidney and liver.

Complications following castration — apart from those due to casting the animal — are usually haemorrhage or peritonitis. The former may take place either within the peritoneal cavity or externally. The site of operation should be carefully examined at autopsy and cultures made if anaerobic bacterial infection is suspected. In any case, it is very difficult to prove that infection occurred at the operation and not subsequently—unless, as occasionally happens, it can be shown that infected instruments, *e.g.*, those used previously for opening an abscess, were employed for the operation.

E. G. W.

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[Observations on the Bacterial Flora of the Intestine of Normal Sheep. Watts, P. S. (1938.) *Vet. J.* **94.** 60-74, 112-127.]

In a series of 25 sheep the average *p*H figures of various portions of the bowels were as follows: duodenum 6·46, ileum 7·65, caecum 7·52, colon 7·77, rectum 8·00. Quantitative estimations of the number of aerobic bacteria present in these portions were made. It was concluded that in normal sheep it is usual for the aerobic bacteria to number less than 1×10^6 per c.c. in the duodenum, between 1×10^6 and 10×10^6 in the ileum, and between 10×10^6 and 45×10^6 in the caecum. There appeared to be no fixed proportion between the number of *Bact. coli* and that of other organisms. There was some evidence that the relative number of cocci is highest in the upper parts of the intestine and that of the bacillus group in the lower parts. The duodenum usually contains *Bact. coli* and often staphylococci and bacilli; *Bact. coli* is usually present in the ileum and caecum together with an increased variety of types within the bacillus group. Of 60 cultures of bacilli, 20 were *Bact. subtilis*, 10 *Bac. mesentericus vulgatus*, 4 were *Bac. megatherium*, 2 were *Bac. mycoides*, 24 were unidentified. One hundred and five strains of the *Bact. coli* group were examined; 48 were *Bact. coli communior*, 12 were *Bact. neapolitanum*, 6 were *Bact. coli communis*, 10 were *Bact. acidi lactici*; the remainder were unidentified but were found only in a small number of sheep. Using acid whey broth and agar and incubating anaerobically, aciduric organisms were isolated from all parts of the intestine in 22 sheep. Cellulose digesting bacteria were found to be more common in the caecum, colon and rectum than in the duodenum and ileum. In the isolation of these organisms incubation at 37° C. was more successful than at 65° C.

A quantitative estimation of the anaerobic flora was made, the media employed being 2 per cent. casein digest beef infusion agar with the addition of 1 per cent. cysteine (0·1 per cent.) and gentian violet (1 in 400,000) and Davidson's sulphite medium. It was concluded that very few anaerobes are present in the duodenum and ileum of normal sheep. They are more numerous in the large intestine but, even there, the numbers are well below 1,000,000 per cubic centimetre. The identification of the non-pathogenic types of anaerobic bacilli was based on examination as to the following characters:—

(1) Morphology in Gram-stained preparation.

(2) Type of colony on Zeissler's glucose blood agar plates.

(3) Proteolytic activity.

(4) Action on dextrose, maltose, mannite, lactose, sucrose, salicin, laevulose, galactose, litmus milk.

(5) Pathogenicity.

The pathogenic anaerobes other than *Cl. welchii* were not classified finally until it had been shown that guinea-pigs were completely protected against them by specific antitoxic sera.

Cl. welchii (Type A) was isolated from all sheep examined. The other types, B, C, D, were not found. *Cl. oedematiens*, *Cl. histolyticum*, *Cl. sphenoides*, *Cl. sporogenes* were each recovered from only one sheep of 20 examined. *Cl. bifermentans* was found in four, *Cl. putrificum* in five, *Cl. multifermentans* in seven and *Cl. tertium* in five of the 20 sheep examined. For the recovery of *Cl. septique*, inoculation of guinea-pigs passively immunised against *Cl. welchii* was necessary. *Cl. septique* was isolated from four out of 21 sheep examined. For the isolation of *Cl. tetani*, direct cultural methods and inoculation of mice were carried out. Five toxigenic strains were obtained from separate individuals in a series of 32 sheep.

The results are discussed and compared with those obtained by other workers who have examined the bacterial flora of man and animals. It would appear that in the upper part of the intestine in herbivora, *Bact. coli* is the predominant organism, whereas cocci are more numerous in this situation in both man and dog. In the large intestine, the flora was similar to that of the ileum but was more abundant, and aerobic spore bearers and cellulose-splitting bacteria were more commonly found. All the common non-pathogenic members of the clostridium group were found but were few in number compared with *Cl. welchii*. Of the pathogenic anaerobes, *Cl. tetani* and *Cl. septique* were isolated from a few animals while

Cl. oedematiens and *Cl. histolyticum* were found in one or two cases only. The author remarks that as the rate of incidence of tetanus cases in man is high in Cambridgeshire and surrounding district, it was thought that the percentage of sheep infected with *Cl. tetani* might have been higher than proved to be the case. He suggests that pathogenic anaerobic bacteria are more often present than his results would suggest and thinks that the difficulty experienced in detecting them is due primarily to the fact that they occur in very small numbers in normal animals.

C. McG.

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[Anthrax in Mink (Mustela vison). Greener, A. W. (1939.) *J. Hyg.* **39.** 149. (1 table.)]

Deaths among mink from anthrax are not infrequent since the animals are commonly fed on raw beef from knackeries, owing to its cheapness and the belief of breeders that raw meat is necessary for the development of a good coat. Details are given of six outbreaks in England in 1938 in which 320 mink out of a total of 1,290 were proved or presumed to have died of anthrax. In 54 of the 320 mink the existence of the disease was proved by microscopical examination of blood smears; in the remainder there could be little doubt as to the diagnosis. In one outbreak anti-anthrax serum was used but, excluding this, 316 of 970 mink died, a mortality of 32·5 per cent. This figure demonstrates the high susceptibility of mink to anthrax, the animals usually being found dead.

One small outbreak was of particular interest in that the onset of clinical anthrax in female mink with latent infection was occasioned by abrasions to the skin during mating. It must be explained that during the act of mating the male seizes the female by the back of the neck, so causing a severe abrasion of the skin, the animals remaining fixed in this position during the period of mating, which occupies some 30 minutes. All the mink on the premises had consumed the same infected material but the only ones to show clinical signs of infection were two females a few days after they had been mated. In this outbreak presumably the meat was not heavily infected.

An important point to be considered concerns the possible danger to human beings through anthrax organisms surviving the process of dressing the pelts. Ordinarily, in this process the pelts are treated with a pickle containing 10 per cent. sodium chloride and 1 or 2 per cent. hydrochloric acid. It can be concluded that if the salt-acid treatment is carried out according to the prescribed conditions there is reason to believe that the spores would be destroyed.

F. C. M.

[Nutritional Requirements of Dogs. (Trans. title.) Arnold, A., Elvehjem, C. A. (1939.) *J. Amer. Vet. Med. Assoc.* **95.** 187-194. (3 tables, 4 figs., 23 refs.).]

The nutritional requirements of dogs vary with the composition of the ration, and the age, weight, and activity of the individual. In general, however, the total food requirements are approximately twice those necessary for maintenance.

Studies on vitamin D confirm the view that in the presence of a satisfactory calcium/phosphorus balance, the requirements of this factor for dogs are relatively similar to those of other species. Typical symptoms of avitaminosis D rapidly disappear following prophylactic administration of the vitamin.

Vitamin B_1 requirements are fulfilled when the ration contains at least 108 microgrammes of the vitamin per 135 grammes of dry matter.

Studies on nicotinic acid and riboflavin requirements for dogs indicate that 0·5 mg. per kg. body weight of the former is sufficient to cure black-tongue, while 25 mg. per kg. of the latter will prevent the onset of yellow liver. The purely prophylactic requirements of these factors, however, are doubtless on a lower grade.

D. D. O.

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[Blood Iodine in Leukaemia. Turner, K. B., McAlpin, K. R., DeLamater, A. *Proc. Soc. Exp. Biol. Med N.Y.* **39.** 55-56. (1 table. 7 refs.).]

Since it is apparent that the blood iodine of patients with myeloid leukaemia differs from those with lymphatic leukaemia, blood iodine determinations were made on 17 cases. Using the method of Trevorrow and Fashena (*J. Biol. Chem.* **110.** 29.) it was found that in twelve lymphatic cases the figure was normal or high, while in five myeloid cases it was normal or low. It seems possible that such variation may be due to differences in iodine content of the white blood cells.

In two cases of lymphosarcoma the blood iodine was high. This might be of diagnostic value. In four cases of Hodgkin's disease blood iodine was normal or slightly elevated.

D. D. O.

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[The Effect of Fire on Mountain Grassland. Staples, R. R. (1938.) *Ann. Rep. Vet. Dept. Tanganyika Territory*, 1937.]

The effect of frequent grass burning was studied in the Njombe mountain area, where the climate is cool, and the land practically pure grassland. Experimental plots were either

maintained unburnt, burnt at various intervals and at varying times of the year, or mown.

It is concluded that non-burning in this type of land allows the accumulation of a large quantity of highly inflammable dry grass, and that if such pastures are not burnt, mowing or close grazing is essential to maintain palatability and nutritive value. Burning in the dry season tends to prevent encroachment of bush and maintain freedom from weeds, whilst burning in the wet season tends to reduce the density of vegetation and to encourage certain coarse grasses.

In the burnt plots the greater density of vegetation was obtained with annual burning. If the intervals between burning were more prolonged the greater heat generated appeared to produce a more open sward. Mowing appears to achieve all the desirable effects of burning without the undesirable effects, such as run off and soil erosion which are assumed to follow the reduction of ground cover produced by burning. U. F. R.

PERMISSIBLE FORTIFICATION OF FOODS

The Council of Foods of the American Medical Association has issued a statement pointing out that it desires to encourage the restorative addition of vitamins or minerals or other dietary essentials, in such amounts as will raise the content of vitamin or mineral or other dietary essential of general purpose foods to recognised high natural levels. The Council makes the provision, however, that such additions are to be limited to vitamins or minerals or other dietary essentials, for which a wider distribution is considered by the Council to be in the interest of the public health. The Council is opposed to the indiscriminate fortification of general purpose foods with vitamins or minerals or other dietary essentials. By fortification is meant the addition to a food of such an amount of a vitamin or other dietary essential as to make the total content larger than that contained in any natural (unprocessed) food of its class.

The following fortifications are recognised by the Council as being in the interest of the public health: (1) the addition of vitamin D to milk to an extent not to exceed 400 units per quart, no objection being made when the added vitamin is obtained from a natural source, if it carries with it one or more other vitamins; (2) the addition of vitamin A to substitutes for butter to an extent not to exceed the amount of vitamin A in butter of high natural content of vitamin A, no objection being made when the added vitamin is obtained from a natural source, if it carries with it one or more other vitamins; (3) the addition of iodine to table salt in an amount not to exceed one part of sodium or potassium iodide for each 5,000 parts of salt; (4) the addition of calcium salts to wheat flour or other cereal product in an amount such that the calcium content of the finished product does not exceed 0·075 grm. for each 100 calories, and (4) the addition of iron to wheat flour or other cereal product in an amount such that the iron content of the finished product does not exceed 0·0015 grm. (1·5 mg.) for each 100 calories.—*Pharm. J.*

N.V.M.A. DIVISIONAL REPORTS

Central Veterinary Society

A meeting of the above Society was held at the Conway Hall, Red Lion Square, W.C.1, on June 1st, 1939.

The President, Mr. Nevill King, occupied the Chair, and there were also present Capt. J. Bell, Messrs. W. Brown, H. E. Bywater (Hon. Secretary), C. Formston, W. Grant, Lieut.-Col. H. Greenfield, Dr. Tom Hare, Mr. S. F. J. Hodgman, Miss B. E. Holman, Mr. J. W. H. Holmes, Miss D. Howell, Messrs. H. D. Jones, H. C. P. King, Herbert King, Major H. Kirk, Messrs. A. B. Mackintyre, G. Dunlop Martin, Drs. J. McCunn, R. F. Montgomerie, Messrs. C. W. Ottaway, W. Perryman, J. Pickup, C. R. A. Powell, R. J. Scorgie, J. S. Steward, C. N. Thompson, S. B. Vine, Col. G. K. Walker, Messrs. A. N. Worden, C. E. Woodrow, T. L. Wright, Professor G. H. Wooldridge and Dr. W. R. Wooldridge. Messrs. J. S. Blair, D. L. Hughes, R. V. Isherwood and J. M. Laing were present as visitors.

The receipt was announced of apologies for absence from Dr. W. P. Blount, Major Glyn Lloyd, Mr. J. W. McIntosh, Professor W. C. Miller and Brigadier Murray.

Following is the text of the letter received from Mr. McIntosh :—

Cairngower,
Crieff,
Perthshire.
May 29th, 1939.

DEAR MR. BYWATER,

As you doubtless know, I am now resident at above address, and it is not likely that I shall attend many meetings of the "Central" in the future unless, perhaps, on an occasional visit to London.

Needless to say, I shall always retain my interest in the Society's activities and here, in my quiet and peaceful "Highland home," I shall often recall those pleasant and happy associations which I always had with the Fellows of the "Central" and with members of the profession generally during my 32 years in the "Great Metropolis."

Please convey to the President my apologies and to all my very best wishes for the future.

I am,
Yours sincerely,
J. W. McINTOSH.

It was unanimously agreed that the Secretary should reply to Mr. McIntosh to the effect that it was the sincere wish of the Society that he would attend its meetings as often as he found it possible to do so ; also expressing the Fellows' appreciation of the immense help he had rendered the "Central" during his long period of residence in London—his absence would be the Society's great loss. Everyone wished Mr. and

Mrs. McIntosh and their daughter long life and happiness in their Scottish home.

The only other item of correspondence was a letter from Dr. Bullock enclosing copies of the annual report of the Victoria Veterinary Benevolent Fund, and some banker's order forms of which he hoped members might be willing to make use. The letter returned thanks for "the assistance so regularly given by your society" and stressed the need of the Fund for continued and additional assistance from all members of the profession.

Elections and Nominations.—The following were unanimously elected Fellows of the Society: Mr. C. W. Abrams, 56, High Street, Wanstead, E.11 (proposer, Professor Wooldridge; seconder, Hon. Treasurer); Mr. H. T. Matthews, 7, Whitehall Place, S.W.1 (proposer, Mr. J. S. Steward; seconder, Hon. Secretary), and Mr. R. W. Roach, Royal Veterinary College and Hospital, Camden Town, N.W.1 (proposer, Mr. A. N. Worden; seconder, Hon. Treasurer).

Mr. D. L. Hughes, of the Royal Veterinary College, was nominated for election to Fellowship by Dr. Hare, seconded by Dr. McCunn; also Mr. J. S. Blair, of 17, Bruce Grove, Tottenham, N.17, by Mr. Formston, seconded by Dr. McCunn.

Morbid Specimens and Case Records

Mr. G. Dunlop Martin exhibited two specimens, the first being a mayonnaise sauce bottle lid "somewhat resembling an oyster shell" removed from the stomach of a seven-year-old bull terrier dog which had been seen eating garbage a week previously. The stomach was found to be badly lacerated and the dog was destroyed.

The other specimen was from a 12-year-old Sealyham bitch brought to him with a protrusion, from the vulva, which appeared to be a polypus and had a smooth, shiny surface. Examination under an anaesthetic revealed that this growth had quite a long pedicle, and further up the vagina was the mass he now exhibited.

He thought he might be able to get at it through the abdomen, and opened the latter accordingly, when he found that one ovary was rather large and very hard and that the uterus also was very much enlarged: therefore he destroyed the bitch.

It was interesting to learn from the owner that until the day before the bitch was brought to the surgery nothing abnormal had been noticed.

Mr. C. R. A. Powell reported upon two cases of anthrax, the interest of which lay in the fact that both were seen in the live animal. The first case was noticed by the owner at tea-time as being off colour. An urgent call was received at mid-day the following day to see the cow as she was passing blood from the nostrils and anus. Upon arrival half an hour later the cow had just expired. He took a blood smear immediately and found that the capsule of the anthrax bacilli was extremely large and also there was no methylene blue reaction. The other case was on a farm five miles distant from the other and seen a few days afterwards. Here the animal (calved three weeks) showed typical symptoms of eclampsia and she was given a purgative and a dose of chloral. Ten minutes afterwards she passed a pint or so of more or less pure blood. Twenty minutes afterwards she collapsed and died. Here again smears (taken immediately) revealed the bacilli in large numbers (with large capsules and no methylene blue reaction). Both cases were confirmed by the Ministry of Agriculture.

Rapprochement between the R.C.V.S. and the P.D.S.A.P.—Further consideration of this subject, to that already given to it at the May meeting of the Society, occupied almost the whole of the remainder of the evening, the majority of those present participating in the discussion.

"A.R.P." for Animals.—The next business before the meeting was to consider the N.V.M.A. scheme for A.R.P. for animals.

The Hon. Secretary, speaking to this matter on the invitation of the President, said that for the benefit of those who were not aware of what had been done, he would mention that over two years ago the Home Office set up a departmental committee on that subject, upon which were appointed a representative of the N.V.M.A., of the R.C.V.S. and of the Army Veterinary Corps.

As was recently said when discussing this matter, big bodies move slowly, and the Home Office Committee was no exception to the rule: they had held one meeting in two years. Accordingly, the N.V.M.A. set up its own committee, and now that the "National" had done something the Home Office Committee had held another meeting. They asked the N.V.M.A. to formulate a scheme, which they did and forwarded it to the Home Office; that scheme was now under consideration. Those who wanted to get a copy of the scheme forwarded to the Home Office by the "National" could secure one on application either to him or to Mr. Knight.

He suggested that each veterinary surgeon should approach his local authority in the matter.

The President thanked the Hon. Secretary for his observations and said that he thought his suggestion would commend itself to the members.

The meeting then terminated, the President being heartily thanked for his conduct of the proceedings.

H. E. Bywater, *Hon. Secretary.*

Royal Counties V.M.A.*

SUMMER MEETING AT MAIDENHEAD

The Summer Meeting of the Royal Counties Veterinary Medical Association was held at Skindle's Hotel, Maidenhead, on Friday, August 4th, 1939.

The President (Lt.-Col. P. J. Simpson) occupied the Chair, and the following members were present: Messrs. L. G. Anderson, J. R. Baxter, H. Bell, J. Bell, Esmond Brown, S. J. Edwards, R. M. Davidson, A. Dixon, G. W. Dunkin, R. C. G. Hancock, J. R. Hewer, G. P. Male, N. P. Male, T. W. Stobo, and Colonel G. K. Walker. Messrs. H. I. Field, and R. E. Ticehurst were present as visitors.

Obituary.—Before proceeding to deal with the items on the agenda the PRESIDENT made reference to the loss which the Association had sustained through the death of Sir Frederick Hobday, who had been an Honorary Associate for many years.

The President said that they all knew how much Sir Frederick had done for the Association and how much his death would be deplored not only by the Royal Counties but by the profession—he might go further and say by the community. He (the President) did not propose to speak more of Sir Frederick's achievements for they were well known to everyone.

The members stood for a moment as a mark of respect to Sir Frederick's memory.

The minutes of the April meeting, having been published in the *Veterinary Record*, were taken as read and duly signed.

Correspondence.—(1) From the following members, apologising for their inability to be present: Messrs. N. S. Barron, John Bell, Veterinary Lt.-Col. Body, Messrs. W. J. Carless, J. C. Coleman, H. B. Collet, A. C. Duncan, Lt.-Col. H. Greenfield, Messrs. T. W. Lepper, W. L. Little, John McIntosh, E. S. Paterson, E. Brayley Reynolds, and R. A. Willett.

(2) From the N.V.M.A., as follows:—

(*a*) Intimating that the Finance and General Purposes Committee were reconsidering the question of a composite subscription to cover not only membership of the Association but membership of the local division also, and asking that a list of members of the Division be forwarded to enable the Committee to ascertain the number of members likely to be affected if such a change were to be made in the existing arrangement.

On the proposition of Col. G. K. WALKER, the Hon. Secretary was instructed to comply with the request for a list of members to be sent.

(*b*) Asking for information as to whether a Refresher Course in Poultry Husbandry and Disease Control had been organised by the Division, the syllabus carried out, and the number of members who had attended. The Secretary intimated that he had put the General Secretary in possession of the details of the course which had been organised last summer.

(*c*) Requesting the Hon. Secretary to remind the members of the memorandum in connection with free treatment of sick animals of the poor, which every member of the profession had received. The members were to be reminded not only of the terms of the memorandum but also of the letter from the President which accompanied it.

(*d*) Informing the Division that a National A.R.P. Animals' Committee had been formed under the auspices of the A.R.P. department of the Home Office. Mr. H. E. Dale, late of the Ministry of Agriculture and Fisheries had been appointed as an independent chairman. The function of the Committee was to advise the Lord Privy Seal of the measures to be taken when dealing with the care of animals in time of war.

Nomination for Election to Membership.—Mr. R. R. Bugg, proposed, Mr. L. G. Anderson; seconded, Mr. T. W. Stobo.

Election to Honorary Associateship.—On the proposition of the PRESIDENT, seconded by Major G. W. DUNKIN, Mr. John McIntosh was unanimously elected to Hon. Associateship.

Election to Membership.—Mr. A. Mair, proposed, Capt. H. B. Collet; seconded, Mr. T. W. Stobo.

Resignation.—The Hon. Secretary intimated that he had received a letter from Mr. T. A. R. Chipperfield resigning his membership. Mr. Chipperfield's resignation was accepted with regret.

Discussion on recommendations made by the N.V.M.A. for an A.R.P. Scheme for Animals.—The PRESIDENT said that although a Committee had been appointed by the Home Office to deal with Animal A.R.P., if the matter were discussed at the meeting some helpful suggestions might be sent to the N.V.M.A. A discussion ensued in which practically every member took part and the following resolutions were drafted to be sent to the N.V.M.A.:

(1) "That the members of the R.C.V.M.A. approve the idea of forming a Veterinary A.R.P. service to deal with the protection and salvage of economic animals in wartime."

(2) "That the 'National' be requested to form a panel of veterinary experts in A.R.P. who would be prepared to visit and instruct the Divisions on technical A.R.P. procedure, relating to Veterinary Service."

*Received for publication October 3rd, 1939.

Report of Delegate to the Royal Sanitary Institute Congress

The President reported that he had attended, as the Society's delegate, the Health Congress held by the Royal Sanitary Institute at Scarborough from July 3rd to 8th, 1939. [As the report of the delegate from the National Veterinary Medical Association has been printed in the *Veterinary Record* (51. 1027-8), Colonel Simpson's report is not reproduced in full.]

In reference to the contribution made by Dr. J. A. Charles (M.O.H., Newcastle-on-Tyne) to the Section of Preventive Medicine, Colonel Simpson, in his report, stated that the essayist quoted many points where in his opinion the present public health system fails. He was very insistent that the general practitioner should be included in the public health orbit, and in fact on the provision of a family doctor for everybody, pointing out that this could be done through the extension of medical benefits to the dependants of insured persons and by the inclusion within that scheme of those not insured, and their dependants. The cost was estimated at twopence per week.

Dr. Charles had much to say regarding the type of student and the medical curriculum. In relation to the latter, Colonel Simpson quoted the words: "The medical curriculum itself is a monstrous phenomenon on which upon a constantly crumbling foundation of the more exact sciences including anatomy, physiology and pathology, there is ultimately built a knowledge of the workings and manifestations of disease in the human being. But that knowledge is often patchy, over-detailed, and in certain directions almost entirely lacking. Nor is the student during the years of his clinical study, fully impressed, as he should be, with the importance of the preventive attitude towards disease. Nevertheless with all these difficulties to overcome the general practitioner who has been established for a few years in practice and has learned that illness has often sociological and psychological factors in its causation, as well as those he was taught in hospital, is, and must continue to be, an invaluable influence in obtaining the better health of the community."

In another paper to this Section, Dr. A. C. Tibbits (M.O.H., Nottinghamshire County Council) pointed out the chaotic state of the public health services and the essayist gave long lists of authorities, such as councils, committees, etc., all of which are dealing with the same thing from different angles.

Complaint was made that the medical health service was not attracting the right type and that earlier retirement should be brought into force and thus give opportunity for earlier promotion.

The above (said Colonel Simpson) was opportune considering the present discussion in the veterinary profession, both as regards education, type of student, and public service, and that was his reason for dilating on a non-veterinary subject.

There was a very good attendance at the Veterinary Hygiene Section (presided over by Colonel Sir Arthur Olver, C.B., Principal of the Royal Dick Veterinary College), but unfortunately the percentage of veterinary surgeons attending was distinctly small, as far as he could judge about 10 per cent. The theme of Sir Arthur's presidential address was the official control and co-ordination of the Animal Industry in its widest sense. In a very interesting way he pointed out the importance of fostering and bettering of food supply, such as milk, meat, eggs, and cereals, and showed how closely these were related and how proper inspection and advice would go a long way to provide the British Isles with more home-grown food and not making them so dependent on imports.

In connection with the vital necessity of veterinary inspection in the eradication of diseases, he quoted what had been done in various countries in the past and how the value of stock had increased where animal husbandry had been placed in the hands of veterinarians. Whilst giving every praise to the wonderful height to which English pedigree stock had risen he still deprecated the tendency to unnatural forcing of milk and egg production.

Sir Arthur concluded by stating that a veterinary education was the best base for the study of Animal Husbandry.

In his paper to this Section Mr. D. J. Anthony, Chief Veterinary Surgeon to Messrs. Marsh & Baxter, spoke on "The Position of the Veterinary Surgeon in the Larger English Meat Factories." He pointed out how through lack of legislation or the enforcement of what legislation there was, meat inspection had practically passed into the hands of the sanitary inspectors in the country generally.

The necessity for veterinary inspection of meat in English factories arose from the fact that certain governments refused the products of these factories on the ground that there was no recognised veterinary inspection of their products by *ante-mortem* and *post-mortem* examination, and it was then due to a public spirited factory owner who appreciated the value of having a veterinary surgeon attached to a large food factory that veterinary surgeons became employed in this capacity.

This contributor pointed out that the legal position as regards employment of meat inspectors is, to say the least, peculiar. The Ministry of Health has no power to appoint or employ veterinary surgeons as meat inspectors. The Ministry of Agriculture and Fisheries, which has a veterinary department, has no legal powers to inspect meat. Meat inspection in England and

Wales is a local authority function, therefore in order that veterinary surgeons employed by factories can have legal powers to condemn meat they have to be employed by a local authority and the factory repays their salaries—due to the cost to a village in which the factory may be situated.

The great wealth of information gleaned by experience in factories is not made available to the veterinary profession as it should be, and the divorce of the veterinary meat inspection in such factories from animal health in general is a mistake which should be rectified.

Colonel Simpson concluded his report with the observation that he thought it a pity that this section of the Royal Sanitary Institute's Congress is not better attended by members of the profession.

Place of Next Meeting.—It was decided to hold the next meeting in London. [Venue changed later to Reading.—*Editor.*]

Any Other Business

Under the above heading, Mr. G. P. Male presented a pair of tooth shears which he had brought from Messrs. Arnold's for inspection by the members. Mr. Male suggested that if the members approved of them they might be added to the number of instruments already in the possession of the Association for lending out to its members.

The members inspected the shears and one member who already has a pair pointed out some disadvantages. The Hon. Secretary was instructed to communicate with Messrs. Arnold's to find out if a more suitable instrument could be procured. [The Association is already in possession of a pair of tooth shears of a much older pattern.] The President thanked Mr. Male for bringing the instrument for the inspection of the members.

Before the meeting adjourned a very hearty vote of thanks was accorded to the President for his conduct in the Chair.

During the progress of the business meeting the ladies made a trip in an electric launch up the Thames to Cookham. Unfortunately the weather was not good and the famous Cliveden Reach was not seen to advantage.

The members and their ladies afterwards were entertained to tea at Skindle's Hotel by the President and Mrs. Simpson, and the Maidenhead members (Major Joe, Mr. John, and Mr. Horace Bell).

During tea Mrs. Male made an appeal for members on behalf of the Ladies' Guild of The Victoria Benevolent Fund—an appeal which procured a new member.

Mrs. Male also raffled an address book bound in red leather on behalf of the Ladies' Guild. The prize was won by Mr. R. M. Davidson and the raffle realised a considerable sum.

Colonel G. K. Walker proposed a vote of thanks to the President and Mrs. Simpson and the Maidenhead members for the arrangements which they had made to entertain their guests that afternoon.

The President, in reply, said that unfortunately he and his friends had been unable to provide better weather but expressed the hope that everybody had enjoyed the afternoon.

The visitors who did not attend the business meeting included Mrs. Baxter, Mrs. H. Bell, Mrs. Dunkin, Mrs. Field, Mr. and Mrs. Hancock, Mrs. Male, Mrs. Simpson, and Mrs. Walker.

H. Bell, *Hon. Secretary.*

ROYAL AGRICULTURAL SOCIETY

At a council meeting of the Royal Agricultural Society an executive committee, comprising Lord Mildmay of Flete (chairman), Sir Roland Burke (deputy chairman), Sir Arthur Hazelrigg, Sir Merrik Burrell, and Sir Archibald Weigall, was elected to carry on the affairs of the Society during the emergency.

Difficulties caused by the closing of the quarantine station in the Port of London for the period of the war, as a precautionary measure against air attack, were referred to in a report of the Veterinary Committee. The council decided to urge the Ministry of Agriculture to resume all quarantine arrangements if at all possible in the interests of the trade of British pedigree livestock. The opinion was expressed that one of the results of the closure had been to halve the value of pedigree stock.

A decision was taken not to hold any Royal Agricultural Shows during the war, and the first show after the war will be held in Lincoln, where the 1940 show was to have taken place. The following two shows will be at Plymouth and Harrogate. The Earl of Athlone, who was in the chair, was elected Honorary Life Governor, and tribute was paid to his work as deputy-president. The council reaffirmed the nomination of Mr. John Evens, of Lincoln, as president for 1940.

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The president and council of the Royal Society have awarded the Copley Medal to Professor T. H. Morgan, For.Mem.R.S., "for his establishment of the modern science of genetics, which has revolutionised our understanding, not only of heredity, but of the mechanism and nature of evolution."

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Sir Joseph Barcroft, Sir Harold Hartley, and Sir Frank Smith have been appointed members of the advisory council to the Committee of the Privy Council for Scientific and Industrial Research. Lord Cadman and Sir James Jeans have retired from the council on completion of their terms of office.

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Manna, the famous racehorse, has died at Banstead Manor Stud, Newmarket, after breaking a blood vessel. Its win in the 1925 Derby gave Steve Donoghue his "hat trick" of Derby winners. Manna also won the Two Thousand Guineas in 1925, and was the sire of Mannamead and Manitoba.

UFAW SCIENTIFIC INVESTIGATIONS COMMITTEE

Rather more than a year ago, UFAW (The Universities Federation for Animal Welfare)* decided to appoint a committee of scientific workers to deal with outstanding problems of animal welfare, and to make recommendations in respect of grants for appropriate research and field investigations. The personnel of the committee, five members of which are veterinarians, was given in the *Veterinary Record* of February 18th, 1939 (51. 225): since the publication of that list, Mr. James Fisher (Zoological Society of London) and Miss I. C. Ledingham (University College, London), have joined the committee, while Mr. N. J. Scorgie (R.V.C.) and Mr. Alex. Robertson (Royal Dick Veterinary College) are acting as "corresponding members." It is now possible to review the progress of the first year, which has been distinctly encouraging, and the following are amongst the subjects which have been dealt with:—

(1) *The Rabbit Problem.*—During the past year, UFAW successfully promoted a Parliamentary Bill, and the Prevention of Damage by Rabbits Act has now become law. The committee approved a grant towards the costs of research upon rabbit ecology, which is being carried out at the Bureau of Animal Population, Oxford. On Skokholm Island, off the Pembrokeshire coast, UFAW has participated in the attempt to carry out a wholesale fumigation of the warrens, and it is intended, if possible, to complete the eradication of the rabbits this winter and so render the island suitable for farming. Some years ago, an attempt was made to clear Skokholm of rabbits by the introduction of myxomatosis—the highly fatal disease of rabbits due to a filterable virus. This venture proved unsuccessful, and it will be most gratifying to humanitarians and agriculturists alike if the fumigation method should succeed. Another area eradication experiment is being supported in Cornwall.

(2) *Anaesthetics for Animals.*—It has been felt that the Animals Anaesthetics Act of 1919 is in need of careful revision, and it was decided to approach the N.V.M.A., urging it to appoint a committee to examine the whole question of anaesthetics for animals, and to make appropriate recommendations for the drafting of a new Bill: this the "National" has agreed to do. The subject of small animal euthanasia is also before the committee.

(3) *Trading in Pet Animals.*—While it seems certain that this will diminish considerably during the time of war, every effort is being made, by educational means and otherwise, to provide for an improvement in the care of such animals before and after purchase. It is considered that malnutrition and the spread of disease must ensue quite as much from ignorance as from deliberate neglect, as it is in the trader's own interest to maintain healthy stocks. Hence the need for disseminating information relating to hygiene and dietetics.

(4) *The Electric Goad.*—The use of this instrument for animal droving has been considered, and field tests are being carried out at an agricultural college to determine its efficacy and to assess, if possible, whether there is any cruelty associated with the method.

(5) Individual members of the committee are engaged in the compilation of bibliographies and abstracts upon relevant matters, and it will perhaps be possible to publish these at a future date.

A. N. Worden, *Hon. Secretary.*

*Membership of UFAW (which includes ULAWS) is open to under- and post-graduates of recognised universities and to qualified professional men and women. It is sincerely hoped that many more veterinarians will support this organisation, for which the late Sir Frederick Hobday did so much by his active presidency, and which provides admirable opportunities for co-operation with others of university and professional status in problems of direct interest and concern to the practising veterinary surgeon. The annual subscription is only 5s. 0d. (valid for a full year from the date of payment) and should be sent to the Secretary, UFAW, Gordon House, 29, Gordon Square, London, W.C.1. A suitable form for a Banker's Order may be obtained on application.

In Parliament

Commandeering of Horses

In the House of Lords on Wednesday of last week Lord Faringdon drew the attention of the Government to "the ill-considered and inconsiderate commandeering of horses, the inadequate compensation paid, and to the heavy casualties suffered among the horses so commandeered owing to their unsuitability for the work and incompetent care of them." He moved for papers. He alleged that in one yeomanry regiment 150 of the horses had died.

Viscount Cobham, Under-Secretary for War, said that there were no substantial grounds for the words "ill considered" and "inconsiderate." Out of the large number of horses acquired less than 3 per cent. were actually taken compulsorily. In a big organisation it was really surprising that complaints had not been far more broadcast. Of all those from whom horses were bought only nine made appeals and two of those had since been withdrawn.

It had been alleged that 150 horses had died in one regiment, but out of the whole number of horses bought since the beginning of the war and all the horses that belonged to the Army before the war exactly 115 had died in that time. That was out of many thousands of horses. Horses that went to the cavalry or yeomanry received the very best treatment.

The Earl of Crawford complained of the

offensive character of the charges made by Lord Faringdon against a hard-working, honourable body of men. The motion and preamble were utterly and grossly unjustified. To say that 150 horses, commandeered for one unit, died, was inconceivable.

As it was impossible for him to vote against the preamble to the motion in which the charges were made he must, after the overwhelming answer of Viscount Cobham, express his most emphatic dissent.

Lord Snell said that it was the privilege of any member of the House to move for papers and to present the best arguments he had upon the best information he had in support of his case. He (Lord Snell) resented the censorious attitude of the Earl of Crawford.

Earl Stanhope said that every member of the House was entitled to raise questions, but he hoped that the procedure of making charges against officers and Civil servants who were unable to reply would not be followed. (Hear, hear.)

The motion was, by leave, withdrawn.

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The following are among the questions and answers recorded in the House of Commons recently:—

Horses

Mr. Radford asked the Secretary of State for War whether all horses and other transport animals which become surplus to military requirements while abroad will be either brought back to the United Kingdom or destroyed under military supervision in accordance with the policy of the Army Council, as announced in 1936?

Mr. Hore-Belisha: The assurance asked for is in accordance with the practice that has for a long time been observed in the disposal of British Army horses on foreign service, and there is no intention of departing from it.

Mr. Radford: While thanking my right hon. Friend for his reply, may I ask whether he realises the wide satisfaction with which the announcement of the Government will be received?

Brigadier-General Sir Ernest Makins asked the Secretary of State for War whether he will lay on the Table of the House a copy of the instructions issued to War Office agents buying horses for Army purposes?

Mr. Hore-Belisha: It would be contrary to practice to adopt my hon. and gallant Friend's suggestion, but I would refer him to the statement made by my hon. Friend the Financial Secretary on Tuesday, October 24th.

Lieut.-Colonel Acland-Troyte: Are the owners of these horses the only people who are not to get a fair price?

Mr. Hore-Belisha: If that is so there is an appeal.

Sir E. Makins: Is not the real reason that the orders are so sketchy that they cannot understand them?

Mr. Hore-Belisha: That is not the reason at all. The reason is obvious.

Sir E. Makins asked the Secretary of State for War what impressment of horses there has been in Scotland and Wales; and whether he is satisfied that this impressment was well spread over the countryside?

Mr. Hore-Belisha: Horses have been impressed in England, Scotland and Wales. Should it be necessary to obtain further horses for the Army, areas not yet visited will be the first to be drawn on.

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Livestock (Slaughtering and Marketing)

Colonel Baldwin-Webb asked the Chancellor of the Duchy of Lancaster (1) whether, in view of the fact that he is not proposing at present to ration meat, and in order to avoid disorganising the trading life of whole sections of the trading community, he will discontinue remodelling the system of slaughtering, the alteration of market days and the rearrangement of the existing system of meat distribution?

Mr. Lennox-Boyd: Whilst the present supply position does not necessitate the rationing of meat, the size of the meat and livestock industry and the number of interests concerned are such that the preparations now being made must be continued against the necessity arising later for full control.

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Milk Production

Mr. Henderson Stewart asked the Minister of Agriculture whether he is aware of the serious position likely to develop in the milk industry, where, owing to the inducements offered to cereal and meat production and the lack of any like incentive to the production of milk, farmers are tending to swing over from milk to other lines, and are now selling or preparing to sell large numbers of heifers and fat cows for slaughter; and whether, in view of the danger of milk shortage next year, he will give urgent consideration to this matter and propose either a subsidy on milk cows or a guaranteed higher price for milk, in order to maintain milk production at its maximum during the war?

Sir R. Dorman-Smith: I can assure my hon. Friend that the Government is fully aware of the desirability of ensuring an adequate supply of milk. I am watching carefully the effect upon milk production of any measures taken or contemplated for other forms of agricultural production.

Mr. Stewart: In view of the seriousness of the matter, which was mentioned in *The Times* last Monday, will not the right hon. and gallant Gentleman consider making a very early statement regarding either the price for milk or a subsidy for cows?

Sir R. Dorman-Smith: I hope that the hon. Member will not exaggerate the situation, which I hope will be a temporary one.

ULSTER POULTRY PLANS

Ways and means of encouraging the development of the poultry industry in Ulster to meet the needs of war-time conditions have been discussed by the Ulster Ministry of Agriculture with representatives of the poultry clubs and the Farmers' Union Poultry Committee.

The outcome of the meeting, it is stated, is "to reaffirm the farming community's intention to maintain output at a maximum, in spite of the temporary shortage of feeding stuffs. More satisfactory supplies are expected by the end of the year, and meanwhile the Ministry is vigorously dealing with this and other problems of the industry."—*Farmers' Weekly.*

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Nov. 20th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

Nov. 24th.—Meeting of the Royal Counties Division, N.V.M.A., at Reading, 2.30 p.m.

Dec. 4th.—R.C.V.S. Membership Examinations—Written.

Dec. 8th.—R.C.V.S. Membership Examinations—Oral.

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N.A.R.P.A.C. ORGANISATION

We have been asked by the President to express his appreciation of the ready response made by members of the profession to his recent appeal for help in connection with the National A.R.P. for Animals Committee.

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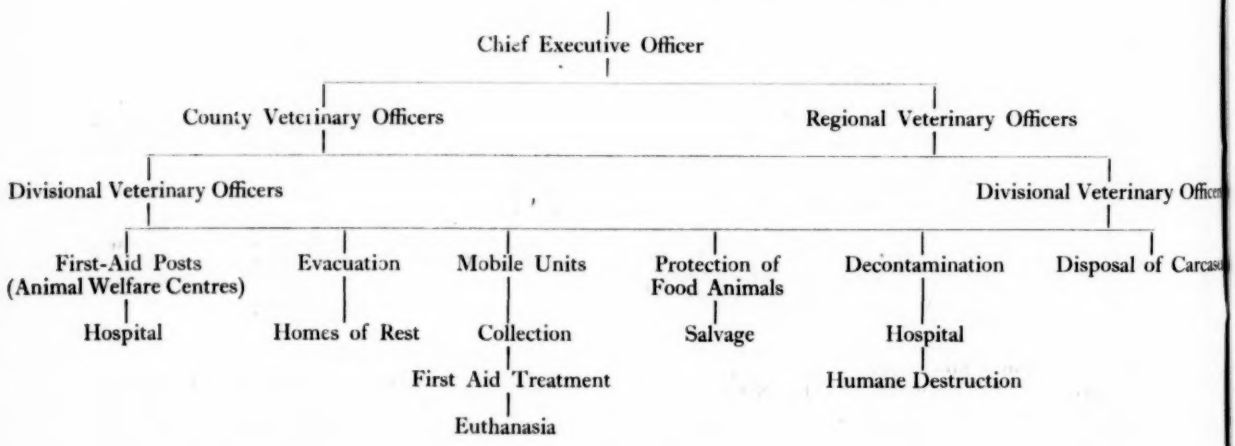
As members of the profession will be aware, the headquarters of the executive side of the National Air Raid Precautions for Animals Committee are situated at 36, Gordon Square, W.C.1. Its organisation is set out in the plan below which gives a clear indication of the executive personnel and the functions embraced.

To assist in the registration of the animals of the country a Registration Branch has been established at 166, Cromwell Road, and Mr. Christopher Stone, speaking in the B.B.C. Home Service programme on Tuesday night, made an appeal for volunteers for this service. It is distinctly to be understood that the National Animal Guards, as these volunteers will be known, will have nothing to do with the handling or treatment of animals and will primarily be occupied with the duties of registration and the issuing of identity discs.

In his broadcast address, Mr. Christopher Stone pointed out that this scheme, which opened up an invaluable avenue of service to animal lovers, is being established primarily to combat the effects of possible panic among animals during an air raid. He intimated that every suitable animal in the country will be provided free with an identity disc (distributed by the Guards) with its own number, to be filed by the registration department of N.A.R.P.A.C.; consequently, any National Animal Guard finding a terrified animal would be enabled, by giving the number of its disc to a local N.A.R.P.A.C. official, to play an essential part in the restoration of strays to their owners. A further important function of the Guards would be to act as contacts between the public and the local Animal First Aid Posts, each, as soon as possible after a raid, seeking injured animals in his or

THE NATIONAL A.R.P. ANIMALS COMMITTEE



County Veterinary Officers. *Veterinary officers responsible for the supervision of counties.*
Regional Veterinary Officers. *Veterinary officers responsible for the supervision of evacuable areas and large cities.*
Divisional Veterinary Officers. *Veterinary officers responsible for the supervision of areas of either of the above.*

In the absence of Resident Veterinary Surgeons, experienced Lay Organisers will supervise areas.

her particular street and, in case of need, getting a mobile unit there as quickly as possible. The complete machinery of N.A.R.P.A.C. would be at the disposal of the Guards.

Mr. Stone took the opportunity further to familiarise the public with the activities of N.A.R.P.A.C. He paid tribute to the "invaluable voluntary help" being given by the animal welfare societies and members of the veterinary profession in the organisation and functioning of an effective scheme for the protection of animals in air raids, emphasising the fact that veterinary surgeons were giving their skilled services to the nation in this regard on a purely voluntary basis. In addition, he stressed the value of the recently issued N.A.R.P.A.C. Handbook, "War-time Aids for All Animal Owners," obtainable from any National Animal Guard or, at 4d., post free, from 36, Gordon Square, W.C.1. "There is one message written all over this book, and in fact it is woven into the whole N.A.R.P.A.C. scheme: do not have your pet destroyed. To destroy a faithful friend when there is no need to do so is just another way of letting war creep into your home."

In conclusion, Mr. Stone described the Animal Guard as the vital link in the animals' A.R.P. system between the various sections of N.A.R.P.A.C.—First Aid Post, mobile unit or registration department—and the animal owner. The scheme was a national one, embracing England, Scotland, Wales and Northern Ireland, and all who enrolled for this service by application to N.A.R.P.A.C. (National Registration Department), 166 Cromwell Road, London, S.W.5, would be recognised as official N.A.R.P.A.C. workers and provided with a special armlet to be worn while on duty.

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Chief Veterinary Officer's Further Tours

Since the account given in our issue of October 21st of the visits paid by the Chief Executive Officer to certain of the evacuable areas in which the N.A.R.P.A.C. organisation is functioning, Colonel Stordy has undertaken further tours. These included first a visit to the vulnerable area extending from Rochester to the Isle of Grain, the eastern portion of which (Gillingham and Sheerness) is in charge of Mr. R. M. Aulton, of Faversham, while between October 23rd and 31st visits were paid to Edinburgh, South Queensferry, North Queensferry, Rosyth, Dunfermline, Dundee, Glasgow, Newcastle-on-Tyne, North and South Shields, Sunderland, Hartlepool and Middlesbrough. In all these centres Colonel Stordy found active operations in progress in connection with N.A.R.P.A.C., veterinarians supervising the work, with efficiency and zeal, in their respective areas being Mr. A. Gofton and Mr. A. Robertson (Edinburgh), Mr. J. B. Mackie (Kirkliston), Mr. A. P. Hamilton (Dunfermline), Major A. Spreull (Dundee), Mr. S. G. Abbott (Glasgow), Mr. H. Thornton (Newcastle), Mr. D. S. Haggart (Newcastle—for North Shields, etc.), Mr. J. J. McDowall (Sunderland), Mr. H. Hicks (Hartlepool) and Mr. D. Starkie (Middlesbrough).

R.C.V.S. OBITUARY

The Late Mr. William Runciman, M.R.C.V.S.

In connection with the death of Mr. William Runciman, M.R.C.V.S., of Station Road, Ely, recorded by us with much regret in our last issue, the *Cambridgeshire Times*, after referring to the "tragic suddenness" of his passing (Mr. Runciman succumbed to a sudden heart attack) observes: "He was a prominent figure in the city of Ely and had an extensive practice as a veterinary surgeon. He intended becoming a medical practitioner and studied at Edinburgh University. At the outbreak of the Great War he joined the Forces and was attached to the Seaforth Highlanders in which unit he gained a commission. He served from 1914 to 1918 and suffered from shell-shock which had lasting effects and from which he never completely recovered.

"After the war Mr. Runciman became a veterinary surgeon, qualifying at Edinburgh. He obtained a Government post in India and was also prominently connected with the Indian Jockey Club in his professional capacity.

"On his return to England he assisted his late father, Mr. Thomas Runciman, and eventually took over the practice. His skill was recognised by the Isle of Ely County Council with whom he held an appointment until recently, and he was also meat inspector for the Ely Urban District Council.

"The practice, which has been carried on by the family in Ely for practically half a century, will be continued."

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General Obituary

Mettam.—At her residence, 8, Dudley Drive, Hyndland, Glasgow, on Sunday, November 5th, 1939, Margaret Morison, in her 74th year, widow of Professor Mettam, of Dublin.

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PERSONAL

Birth.—Stewart.—On November 5th at "The Cottage," Ashton, nr. Chester, to Joan (qualified Dowlen), wife of Charles Stewart, M.R.C.V.S., a daughter.

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Marriage.—Weipers—Maclean.—On November 7th, at Glasgow, William, son of the late Rev. John Weipers and Mrs. Weipers, of 23, Menock Road, Glasgow, to Mary, daughter of the late Joseph Maclean, of Castlebay, Barra, and Mrs. Maclean, 15, Cresswell Street, Glasgow.

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R.C.V.S. ANIMAL MANAGEMENT EXAMINATION

List of Successful Candidates

Liverpool.—Edwards, A. M., Hague, D. C., Hartley, W. T., Hunnam, Robt., Marginson, B. C., and Ohri, H.

Dublin.—Allison, P. T. M., Beattie, F. W. (credit), Blake, P. A. (credit), Counihan, E. J., Dolan, M. M., Duigan, T. J. (credit), Farrell, H. F., Freeman, W. J. (credit), Hodgins, R. D., Huey, J. (credit), Jackson, T. W. (credit), Jolley, C. T., Kelly, W. R., Larkin, P., MacGowan, T. E. (credit), Magee, B. L., O'Neill, W. D., Power,

J. H., Slevin, J. G., Smyth, P. J., Steele, T. H. J., and Tyrrell, J. T.

(To be continued)

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EMERGENCY MEDICAL SERVICE

The Minister of Health has discussed with representatives of the Advisory Committee set up by the Central Medical War Committee their recommendations for the reorganisation of the Emergency Medical Service. The main objects of these recommendations are to release consultants and other senior members of the medical profession from their whole-time obligations in the Emergency Medical Service so that they may be free to attend to the needs of the civilian sick and to their normal duties in the medical schools, while remaining available on a part-time basis for casualty work. Mr. Elliot promised to consider the proposals with his expert advisers.

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EQUIPMENT AT FIRST-AID POSTS

The Minister of Health has asked all scheme-making local authorities to complete a return of all equipment held at first-aid posts. In a letter to such authorities the Ministry states that contracts have been placed for a supply of additional equipment, a proportion of which will shortly be issued to scheme-making authorities to constitute a local reserve from which supplies at aid posts can be replenished as and when required.

For scheme-making authorities outside the London area further bulk supplies will be held at Government Regional Stores, and it is intended that these reserves will be available to build up the local reserve when the latter has been reduced by an extent representing not less than 25 per cent. of its original bulk. Requisitions for supplies from the Regional Stores for this purpose should be made to the Minister by county medical officers or medical officers of health, and should be accompanied by a statement of the equipment issued by way of replenishment to each first-aid post in the area. The position in London is still under consideration.—*Pharm. J.*

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ABANDONED NATIONAL SHOWS

"While the directors of the Highland and Agricultural Society were deciding at Edinburgh on Wednesday last that no show be held in the coming year the Council of the Royal Agricultural Society of England similarly decided on the same day, that their arranged-for show at Lincoln in July should also be abandoned," states the *Farming News* of November 10th. "The reasons for such decisions are obvious. Neither at Inverness, where the 'Highland' Show fell to be held, nor at Lincoln could it be hoped for that the attendances of the public be such as to guarantee that financial success which is essential in the carrying out of such exhibitions. Other good reasons for such a decision were mentioned by Lord Mildmay of Flete. These were that the question of transport might become difficult at any moment, and also that it would be most inadvisable for large numbers of people to gather together. Apart from this they could not expect to get local support for the show at Lincoln or anywhere else. This would apply equally in connection with the great Scottish national event at Inverness. While Inverness people will, no doubt, regret that circumstances should prevent them getting their usual 'turn' of the 'Highland' next year, they will, no doubt, be pleased with the assurance that the next 'Highland,' whenever it may be, will be theirs, with Dundee to follow as previously decided."

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THE LIVESTOCK IMPROVEMENT SCHEMES SUSPENSIONS

"When are the livestock improvement schemes to be restored? The Minister of Agriculture was asked that question in the House of Commons on October 31st, and his reply, from the point of view of agriculture, was most unsatisfactory," states the *Scottish Farmer*, which proceeds: "He stated that the question of resuming the grants would be considered at the end of the war. Those schemes, which include the granting of premiums for bulls and boars, for the subsidising of stallions and for assistance to sheep breeders—all of which have helped materially in improving the quality of commercial livestock throughout the country. Now those schemes are to be scrapped, and the livestock allowed to deteriorate in Great Britain; for although the Minister of Agriculture speaks officially in such cases for England only, we take it that the corresponding schemes in Scotland will be scrapped also. Fortunately the Government has been forced to withdraw that other retrograde piece of legislation which was passed at the outbreak of war—the suspension of the Scrub Bull Act. Had the Scrub Bull legislation been suspended as well as the premium scheme, our commercial herds would be well on the way to deterioration if the war should last any length of time. The decision to suspend the grants was reached, according to the Minister, 'partly on administrative grounds and partly for reasons of economy'; and he added that although they served a useful purpose, their maintenance could not be justified 'as an essential service in a time of emergency.' But we have not heard that the livestock improvement schemes are to be suspended either in Eire or in Northern Ireland."

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MINISTRY OF AGRICULTURE NEWS SERVICE ITEMS

We publish herewith the gist of the Ministry of Agriculture's weekly News Service No. 9, November 7th, 1939, for the information of our readers. We have selected from it only such matters as are likely to be of interest or importance to them.

Feeding Stuffs in War-Time

It is still necessary to exercise the utmost economy in the use of concentrated feeding stuffs. We must make the best of available supplies, for the only thing that can be said with certainty about the future is that we must anticipate temporary dislocations and shorter supplies of imported feeding stuffs than in peace-time.

Profit from Necessity.—In some cases this necessity can be turned to profitable account,

especially on dairy farms. Farmers have been weeding out very low-yielding cows to meet the temporary demand for cow-beef. The nation's output of milk will not be greatly affected, the farmer's bank balance will often be better for it, and there will be more rations available to keep up the milk from the better yielders.

More careful use of hay probably offers as wide scope for economy as any. Dairymen, like shepherds, are inclined to err on the generous side when estimating the food requirements of their charges and if the hay ration for each cow were weighed, there would often be some surprises.

To quote a specific instance, a progressive dairy farmer who had always made a profit on his dairy decided to weigh each cow's hay ration and compare with the ration advised by Reading University. He found that he was wasting just over half a ton of hay a week on his whole dairy, equivalent to one third of the net profit he was then making.

Replacing Maize.—Hay can be used for more than the maintenance part of the ration. On full winter feeding a daily allowance of 18 lb. of first-class hay to a milk cow will supply enough nutriment for maintenance and the first gallon of milk; 24 to 25 lb. of average hay might do the same. But this would be rather a bulky ration for cows in full milk. A better winter ration would be 18 lb. of average hay and 30 to 35 lb. of marrow stem kale or 40 to 45 lb. of roots.

The bulky, home-grown foods can replace concentrates for the first gallon of milk and this will have to be the system for many dairy farmers in war-time. But when they plough up their grassland it is essential that they think of some of the coming crop in terms of food for their cows, if they wish to maintain milk supplies. Many have forgotten that an acre with a good crop of mangels, marrow stem kale or seeds hay will go twice as far in nourishing their cows as an acre of average meadow grazing.

Oats, together with tail barley and wheat and also dried beet pulp, can replace maize and most of the maize foods in compounding rations for all kinds of stock so far as energy is concerned. Beans and peas will make up the protein to balance these starchy foods. But beans and peas have fallen into disfavour. Once we grew 600,000 acres of them, but now little more than 100,000 acres. It is true they tend to make the ground weedy, but they enhance its fertility in nitrogen and should now be most seriously considered as a home-produced source of protein to make good some of the ground nuts and concentrated cake that may never arrive here.

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Potatoes for Pigs

No Need to Waste Tubers Damaged by Blight

In some districts the potato crop was attacked by blight. The ensilage of such potatoes is most simply and economically carried out in the following way: a pit should be excavated on a piece of dry, well-drained ground. This should, if possible, be situated close to the feeding pens. The excavation might be 6 to 7 ft. wide and 2 ft. 6 in. to 3 ft. deep, and the sides should slope slightly inwards. If possible it should be lined with straw.

Consolidate.—The potatoes should first be washed and then cooked in a steamer or copper for about 45 minutes. Immediately following their removal from the steamer or copper, the potatoes, whilst still hot, should be transferred to the pit *and consolidated as tightly as possible* in order to ensure the thorough exclusion of air. When finishing off the silo, the mass of pressed material should be raised into a ridge in the middle and the sides and top of the ridge covered with wet sacks or straw. This in turn should be covered with a heavy layer of soil or clay well rammed down.

Potato silage made in this manner will keep in excellent condition over very long periods. It usually contains about 30 per cent. of dry substance and 70 per cent. of moisture and forms an appetising and nutritious food for sheep, cattle and pigs. In feeding value it is equivalent to about one quarter of its weight of barley meal. It is not usually fed to pigs of less than 100 lb. live weight, for smaller pigs neither like it much nor thrive on it as a rule. To introduce it gradually into the ration is, of course, desirable. The amount may be steadily increased up to 6 lb. a day by the time the pig reaches 120 lb. live weight and thereafter to 10 to 12 lb. a day at 200 lb. live weight. Suckling sows can take up to 20 lb. a day.

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"Swayback"

This disease, also known as "Swingleback," "Swingback," "Jinkback" and "Warfa," occurs in many parts of Britain especially Derbyshire and Yorkshire, though the number of lambs affected varies from season to season. In some districts the disease is so prevalent that farmers have given up keeping sheep in them.

But now the disease has been investigated, and although its cause has not been discovered, the indications are that the brain and spinal cord are affected, that the lamb begins to be affected before it is born, and that the disease is associated with a deficiency of copper in the ewes' food.

Experiments have been made in Australia and Derbyshire. In both cases it was found that the feeding of copper, in the form of copper sulphate (blue stone), to ewes before they lambed reduced very greatly the incidence of the disease. Ewes from farms where the disease was prevalent were given access to salt licks containing copper in amounts of 0·3 per cent. and 1 per cent. On the same land ewes were kept with no access to such licks to act as controls.

Those fed with copper produced far fewer lambs with the disease than those that had none. The nearer the time to lambing when the ewes had access to the 0·3 per cent. licks, the greater was the chance of swayback developing in the lambs, but when the ewes had access to the 1 per cent. licks, even for only six to seven weeks before lambing, the disease did not occur in their lambs.

It must be remembered that copper in large amounts is poisonous to stock, and therefore it is recommended that ewes should receive the 0·3 per cent. licks at the time of tupping and throughout the gestation period. If it is impossible to feed the salt licks until about six or seven weeks before lambing, then the 1 per cent. licks should be fed.

Licks should be protected from the weather, for heavy rain and snow will cause them to melt away. They should therefore be placed in hay racks or some similar holder.

WORLD'S FIRST FIVE-THOUSAND GALLONER

"Cherry, Messrs. Wort & Way's Dairy Shorthorn, holder of the world record for a year's milk yield, with 4,164 gallons, has at last gone dry," writes a special correspondent to the November 10th issue of the *Farmers' Weekly*. "Besides being the first cow in the world to give 4,000 gallons in a year, she wound up her record lactation by exceeding 5,000 gallons in 563 days—which is believed to constitute yet another record. The actual figure was 50,057¾ lb., giving a daily average of over 8¾ gallons.

"Many requests and tempting offers for the offspring of the nine-year-old cow have reached the Amesbury (Wiltshire) farm. She has been served by a Hastoe bull, and is due to calve next February, but her owners intend to retain her calves for their herd. At the time that her 365 days in milk were completed, Cherry was giving round about 10½ gallons a day on four milkings. Immediately the record had been achieved, Mr. Alex McKie, the farm manager who was personally responsible for her, put her down to three milkings at irregular hours in order to 'work her down.' Remembering that there was a time in her history when she had mastitis, she was handled carefully, and was not altogether denied cake. The ration was reduced from 28 to about 10 lb. per day, and the cow was, of course, out to grass, and lying out day and night. For some time the reduction in yield came very slowly; first it dropped to seven gallons and at length to five, and then, in June, her milkings were dropped to twice daily. Eventually the daily yield dropped to two gallons, and at that she was put back to once milking, going dry at the end of October.

"Cherry is still lying out in the paddock at Red House Farm, day and night. The strain of the record-breaking and the outdoor life seem to have left no mark whatever on her. To-day she keeps remarkably fit, does not appear to have lost any flesh—her quarters are as well covered as ever—and her coat retains the bloom that was so noticeable last Good Friday when she completed the year's record. When the weather gets more severe, however, she will come in for the nights, but will continue to run out by day.

"In view of responsible opinions expressed that after such a remarkable performance it would not be possible to get the cow in calf again, it is interesting to note that Cherry did not return to the bull. She is due to calve in the first week of next February, and Mr. Frank Wort is hoping for a bull calf. This will be her sixth calf. The fifth, a yearling heifer, is still running out on the farm, due to be served next spring.

"At the moment there is no intention of any attempts to make Cherry beat her own record. Pointing out that there is no object in his making efforts to that end, Mr. McKie is confident that, provided she keeps clear of milk fever, Cherry is capable of doing still better—given the required and highly skilled attention. Her yield to September 30th, the end of the milk-recording year, was 49,850½ lb., a daily average of over 92 lb. for 541 days. The extraordinary performance and the publicity attached to it have naturally attracted world-wide attention."

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SWINE FEVER IN THE ISLE OF ELY

Growing anxiety over the increase in swine fever in the Isle of Ely has led the emergency committee of the County Agricultural Committee at March to decide to ask the Ministry of Agriculture to make an order restricting the movement of pigs in the whole of the Isle except under licence.

The incidence of the disease is most serious in the Ely district, but there have been a number of outbreaks in various parts of the Wisbech district as well. The quarterly report revealed that there had been eight cases confirmed, against four the previous quarter, and that since October 1st, there had been 54 suspected cases of which 28 were confirmed.

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A full report of the proceedings at the National Sheep Breeders' Association International Conference at Windsor on July 3rd has been published in pamphlet form. Copies are available from Mr. Harry B. Brown, Sentinel House, Southampton Row, London, W.C.1.

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ARTIFICIAL INSEMINATION OF LIVESTOCK

Progress in Russia

"More than 50 million head of livestock are said to have been produced in the Soviet Union in recent years by the method of artificial insemination," states the *Scottish Farmer*, which proceeds: "Many animals thus produced are on show at the All-Union Agricultural Exhibition in Moscow as outstanding examples of particular breeds. Artificial insemination is said to have been most successfully practised in the case of sheep, 15 million head of which were produced in the Soviet Union by this method last year. Artificial insemination has been so simplified that any shepherd can apply it, states the Russia To-day Press Service.

"In one year, T. M. Petrov, a member of a collective farm in the Orlov district of the Rostov Province, claims to have obtained 18,000 lambs from one pedigree ram. As far back as 1935, J. Tsibulya, a shepherd at the Free Labour Collective Farm in the North Caucasus, obtained 4,000 lambs from one pedigree ram. Collective farmers are said to be able to raise as many lambs in a year from one pedigree ram by means of artificial insemination as can be produced from 200 or even 400 rams in the ordinary way. When a State or collective farm acquires a prize ram it is possible to obtain tens of thousands of fine lambs from it.

"Although the method of artificial insemination of other animals has not yet been perfected, 1,200,000 cows and 120,000 mares were successfully inseminated in this way last year. One of the stands at the Artificial Insemination Pavilion at the All-Union Agricultural Exhibition shows the work being done by the Prishekninsk Breeding Station in the Leningrad Province, where cows have been artificially inseminated since 1932 and where 92 per cent. of the cases were successful. This figure was raised to 99 per cent. by experts in some dairy and stock farms in the Leningrad and Vologda provinces. In the Sverdlovsk Province, M. A. Kulikov obtained 1,500 calves in one year from cows fertilised artificially from a Martin Tagil bull. On the same farm 6,000 calves were sired by four bulls.

"Similar results have been obtained in the case of horses, and the method of artificial insemination will soon be applied to these animals on a large scale. A method has already been worked out for the artificial insemination of

pigs and poultry, and the necessary instruments have been designed. As is shown at the Exhibition, the semen used in artificial insemination is delivered by rail, motor-bicycle, motor car, aeroplane, bicycle, and even by pigeon post. As the semen retains its properties for six hours, it is possible to inseminate female stock 600 miles away. Soviet scientists are now working on the problem of preserving semen for a longer period."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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SALVAGE OF FOOD ANIMAL CARCASES

To the Editor of the Veterinary Record

Sir,—Veterinary surgeons are receiving requests to assist in extending the services of the National A.R.P. for Animals Committee to the counties. The Committee invite veterinary surgeons to "make arrangements for the disposal of carcases and take steps to secure the maximum salvage of usable material." I have quoted this suggestion because of its particular importance to the country practitioner. Are we right in taking as the main premise for our efforts in the counties that the Government require the strict conservation of all animal food which is fit for human consumption? Is there a Government instruction to the effect that the edible carcases of all food animals which have been killed or injured by enemy action, are to be converted into human food?

The National Farmers' Union has been notified by the Ministry of Food that "the police will be informed of cases of injured cattle, and will get into touch with the District Chairman of Auctioneers or Slaughterhouse Manager, if the number of animals affected cannot be dealt with at a nearby slaughterhouse. If the District Chairman or Slaughterhouse Manager cannot deal with the matter themselves, they will inform the County Slaughterhouse Agent, who will arrange for the attendance of a salvage squad of slaughterers. The County Slaughterhouse Agent will also have arrangements made for the transport of edible carcases to the nearest authorised slaughterhouse, where the carcases will be valued on the basis of the prescribed prices ruling for animals of similar class." The Ministry of Food makes no reference to the salvage of sheep, pigs, poultry, and other food animals. Secondly, it specifically limits salvage to *injured* cattle, but does not define the quality or cause of the injury. Thirdly, it instructs the County Slaughterhouse Agent to arrange for the transport of *edible* carcases but it does not state who shall decide which carcase is edible and which is inedible.

Anyone with practical experience of the effect of enemy action upon animals would have expected official direction on the action to be taken *before* animals are removed to slaughterhouses. Someone should advise the stockowners which animals are potential food carcases and thus removable to slaughterhouses, and which animals should be knackered or dealt with other than for human food conservation; and I claim that the stockowner's veterinary surgeon is best qualified for this duty. I am open to correction, but I cannot find in official communications that the veterinary surgeon has been allotted any place in this scheme of things. Supposing the stockowner on his own initiative had called in his veterinary practitioner, would the latter's advice be admitted and adopted by the various authorities mentioned in the Ministry of Food's instructions?

The stockowner has to face several important facts. His food animals from cattle to poultry are exposed to injury by enemy action in the form of high explosive or gas. For the animal the consequence of such action may be (1) death, or (2) immediate or delayed injury of varying quality. It is reasonable to assume that physical injury or concussion as a direct or indirect result of high explosive would not impair the animal's value as human food, though its saleable value to the butchers might be reduced. Furthermore I would suggest that the carcase of a healthy animal which had been killed directly by high explosive would be fit for human food. It would appear to be generally accepted that the carcases of animals which have been *killed* directly by gas would be unfit for human food. But what should be done with the carcases of animals which are *injured* or are *at risk of injury* by gas?

The effect upon the living animal of the various types of gas has been published, but there appears to be little information upon (1) the rate of absorption by, and penetration of, the tissues of food animals by the respiratory irritants, carbon monoxide from H.E. and the vesicants; and (2) the effect of given doses of such gases upon the tissues after exposure over given intervals of time. Many months of research might be occupied in obtaining authoritative information on these questions; meanwhile some provisional scheme for dealing with the animals injured, or exposed to injury, by gas should be established if wastage of food is to be avoided. Whatever provisional rule is adopted it must be left very largely to the judgment of the veterinary practitioner. I cannot imagine any other individual having the requisite technical knowledge to advise the stockowner which of the animals actually injured by gas at the time of examination are potential food carcases; which animals subsequent to the examination might develop injurious effects, and thus should now be slaughtered for food; and which animals are too severely affected for other than knackering purposes. The veterinary surgeon's assignment of the carcases to the slaughterhouse as *potential* human food is, in my opinion, the necessary stage between the infliction of the damage and the inspection of the dressed carcase by the medical authority. But will the veterinary practitioner be authorised to act in this way?

A further important consideration to the stockowner is that he is unable to recover compensation from Government or private insurance for damage to his stock by enemy action. Consequently it is to his interest to secure the conversion into human food of his killed and injured animals, also of those animals which might subsequently become ill as a result of the enemy action. In this case the stockowner's interests coincide with those of the nation. But it appears that under present arrangements the meat trade

is entitled to refuse to purchase the salvaged carcases which have been passed by the meat inspector and to regard such carcases as fit only for the "slink trade." Is the meat trade to be the arbiter? If so, the probable consequences will be unnecessary loss of human food, irrecoverable loss to the stockowner, and mortification for those veterinary surgeons who endeavour to assist N.A.R.P.A.C.

I have the honour to be, Sir,
Your obedient servant,
TOM HARE.

The Veterinary Research Laboratories,
London, N.W.3.
November 11th, 1939.

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PURCHASE OF REMOUNTS

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—Having had some experience of Remount Duty the letter from Mr. Campbell in your issue of November 4th attracted my attention, and in some respects surprised me.

There can be no excuse for buying a bad animal for military purposes, and I take great exception to the suggestion that the "veterinary surgeons on this work must close their eyes to many unsoundnesses in a good-class animal." Active service at all times requires soundness and physical fitness in man and beast, and at critical moments every ounce of strength and endurance is demanded to achieve success or prevent disaster. *That* is the time when one realises the ill effects of unsoundness, weakness and unsuitability. The advice I have always given to those embarking on Remount Duty is, "*Never forget* that the animal you buy may be allotted to a dear relative or a pal. If that animal through unsoundness or unsuitability is the cause of that person losing his life, or of disaster to the Force *you are responsible*."

Occasionally a remount officer will attempt to buy an animal contrary to the advice of the veterinary officer. I have always demanded that a note to that effect be made on the B.88 and the matter reported to Remounts. It has always ended in my favour. Unfortunately there is a belief that because a man is a "hunting man" he is an expert judge of horses: it by no means always follows. My experience leads me to say, with due respect, that therein lies the cause of bad horses being bought, and, in fact, not infrequently it is the veterinary surgeon who saves the day.

With regard to the horses supplied to a North Country yeomanry camp, I can only say that if the batch included some that I quite unintentionally saw just after they had been purchased, there are most excellent grounds for the grumbling.

Members of our profession, Sir, will no doubt be required for remount work, and I trust that the few words of advice I have ventured to express will not fall on barren soil.

Thanking you,

I am, Sir,
Yours faithfully,
R. F. WALL.

The Willows Bungalow,
Maidenhead Road,
Windsor.
November 9th, 1939.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT OF 1937 (PART IV)

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 31st Oct., 1939	23	25	9	1,329	—	—	36	374	150
Corresponding period in									
1938	33	36	2	113	—	—	4	67	67
1937	27	39	14	1,472	1	1	28	36	27
1936	19	19	13	1,814	1	1	6	79	54
Total 1st January to 31st Oct., 1939	625	709	82	9,572	32	72	214	2,552	1,611
Corresponding period in									
1938	680	1,060	165	20,812	44	74	130	652	513
1937	580	701	36	6,569	101	139	175	870	542
1936	374	440	21	2,537	99	241	175	1,631	1,157

NOTE.—The figures for the current year are approximate only. § Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.* herds officially certified as free from tuberculosis, as at 31st October, 1939, was as follows:— ENGLAND 2,913 ... WALES 6,666 ... SCOTLAND 2,312 ... TOTAL (GREAT BRITAIN) 11,891